

NRO Industry Advisory Working Group (IAWG) Software Business Models Terms of Reference

v. 1.0.4

10 April 2017

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Document Revision History

Version	Date	Notes
1.0	1 Dec 2015	Initial Release
1.0.1	15 Mar 2016	Draft Revision
1.0.2	27 Apr 2016	Added new terms
1.0.3	27 Sep 2016	Added new terms
1.0.4	10 Apr 2017	Added new terms

Acronyms

ABC	Adopt, Buy, Create
AO	Authorizing Official (formerly Approving Official)
API	Application Programming Interface
AR	Army Regulation
ASD	Application Security and Development
ASD	Assistant Secretary of Defense
ASP	Application Service Provider
CAA	Contributor Assignment Agreement
CFR	Code of Federal Regulations
CIO	Chief Information Officer
CLA	Contributor License Agreement
CLS	Common Levels of Support
CNSS	Committee on National Security Systems
CNSSI	Committee on National Security Systems Instruction
CoI	Community of Interest
CoP	Community of Practice
COTS	Commercial-off-the-Shelf
CRO	Chief Risk Officer
CSO	Chief Security Officer
CSP	Cloud Service Provider
CTO	Chief Technology Officer
DAA	Designated Authorizing Authority (replaces Designated Approving Official (DAO))
DAO	Designated Approving Official (replaced by Designated Authorizing Authority (DAA))
DFAR	Department of Defense Federal Acquisition Regulation
DFARS	Defense Federal Acquisition Regulation Supplement
DHS	Department of Homeland Security
DoD	Department of Defense
DoDD	Department of Defense Directive
DoDI	Department of Defense Instruction
ELA	Enterprise License Agreement
EULA	End User License Agreement
FAR	Federal Acquisition Regulation
FedRAMP	Federal Risk and Authorization Management Program
FLOSS	Free/Libre/Open Source Software
FOSS	Free/Open Source Software
FSF	Free Software Foundation
GFE	Government Furnished Equipment
GNU	Gnu's Not Unix
GOTS	Government-off-the-Shelf
GPL	GNU General Public License
IA	Information Assurance
laaS	Infrastructure as a Service
ICD	Intelligence Community Directive
IC ITE	Intelligence Community Information Technology Enterprise
ICT	Information and Communications Technology
IEC	International Electrotechnical Commission

TERMS OF REFERENCE

IEEE	Institute of Electrical and Electronics Engineers
I/F	Interface
IP	Intellectual Property
IP	Internet Protocol
IS	Information System
ISO	International Organization for Standards
ISP	Infrastructure Service Provider
IT	Information Technology
M2C2	Mobile Modular Command and Control
NASP	NRO Application Service Provider
NDAA	National Defense Authorization Act
NDI	Non-Developmental Items
NIST	National Institute of Standards and Technology
NPE	Non-Person Entity
NSA	National Security Agency
NSS	National Security Systems
NVD	National Vulnerability Database
O&M	Operation and Maintenance
OCI	Organizational Conflict of Interest
OEM	Original Equipment Manufacturer
OS	Operating System
OSD	Open Source Definition
OSI	Open Source Initiative
OSS	Open Source Software
OSSI	Open Source Software Institute
PaaS	Platform as a Service
PC	Personal Computer
PDA	Personal Digital Assistant
POC	Proof of Concept
POV	Proof of Value / Pattern of Value
PPSS	Post-production Software Support
RMF	Risk Management Framework
ROI	Return on Investment
SA	System Administrator
SA	Systems Architecture
SaaS	Software as a Service
SAM	Software Asset Management
SCA	Static Code Analysis
SLA	Service Level Agreement
SwA	Software Assurance
SWASE	Service, Widget, Application, Software, Etc.
TLC	Total Lifecycle Cost
TCO	Total Cost of Ownership
USC	United States Code
W3C	World Wide Web Consortium

Terms

Term	Definition	Source
Abandonware	<p>1) Computer software that is no longer distributed or supported by the developer or copyright holder.</p> <p>2) Abandonware is similar to an orphan work, but the copyright holder is known and can be contacted. In Oct 2015 the Librarian of Congress published revised rules allowing some flexibility with abandonware.</p>	<p>1) http://www.oxforddictionaries.com/us/definition/american_english/abandonware 2) Electronic Frontier Foundation https://www.eff.org/deeplinks/2015/10/victory-users-librarian-congress-renews-and-expands-protections-fair-uses)</p>
Access	Ability to make use of any information system (IS) resource.	CNSSI No. 4009 Committee on National Security Systems Glossary, https://www.cnss.gov/
Access Control	The process of granting or denying specific requests: 1) for obtaining and using information and related information processing services; and 2) to enter specific physical facilities (e.g., Federal buildings, military establishments, and border crossing entrances).	CNSSI No. 4009 Committee on National Security Systems Glossary, https://www.cnss.gov/
Access control mechanism	This permits managers of a system to exercise a directing or restraining influence over the behavior, use, and content of a system. It permits management to specify what users can do, which resources they can access, and what operations they can perform.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Acquirer	Stakeholder that acquires or procures a product or service from a supplier	ISO/IEC 12207 "Software Life Cycle Process"

TERMS OF REFERENCE

Term	Definition	Source
Acquisition	<p>1) The process of obtaining a system, software product, or software service</p> <p>2) The acquiring of supplies or services (including construction) with appropriated funds and for the use of the Federal Government through purchase or lease, whether the supplies or services are already in existence or must be created, developed, demonstrated, and evaluated. Acquisition begins at the point when agency needs are established and includes the description of requirements to satisfy agency needs, solicitation and selection of sources, award of contracts, contract financing, contract performance, contract administration, and those technical and management functions directly related to the process of fulfilling agency needs by contract.</p>	<p>1) ISO/IEC 12207 “Software Life Cycle Process”</p> <p>2) Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"</p>
Activity	<p>An Army organization. Within the context of the AEA, a specific function that must be performed to produce, consume, or transform information. Activities are grouped into larger processes in support of accomplishing tasks and missions. Depending on the context, an activity or function is performed by an individual, unit, or prime system element.</p>	<p>Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"</p>
Administrative work processes	<p>Enabling activities that support mission and mission-related processes and functions (for example, manage legal process, performance assessment, combat health support, family support, and so on).</p>	<p>Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"</p>
Agreement	<p>Mutual acknowledgement of terms and conditions under which a working relationship is conducted</p>	<p>ISO/IEC 12207 “Software Life Cycle Process”</p>
Application	<p>1) Software that performs a specific task or function, such as word processing, creation of spreadsheets, generation of graphics, or facilitating e-mail. An application should be considered a system for the purpose of reporting to the Army Information Technology Registry unless it is part of a larger system already being reported.</p> <p>2) consists of one or more components, modules, or subsystems. Frequently a synonym for "system"</p>	<p>1) Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"</p> <p>2) IEEE Computer Society Software and Systems Engineering Vocabulary</p>
Application Programming Interface (API)	<p>“An Application Programming Interface (API) is the set of signatures that are exported and available to the users of a library or a framework to write their applications.”</p>	<p>IEEE Software Engineering Body of Knowledge V3.0</p>

TERMS OF REFERENCE

Term	Definition	Source
Application Service Provider (ASP)	An organization that hosts software applications within its own facilities. Known as "cloud computing" and "software as a service" (SaaS), customers rent the use of the application and access it over the Internet or via a private line connection. Also called a "commercial service provider." The Web browser, acting as a universal client interface, has fueled this "on-demand software" market.	PC Magazine Encyclopedia, retrieved 06 Sep 2016, http://www.pcmag.com/encyclopedia/term/38037/asp
Attribute	A property or characteristic of one or more entities (for example, race, weight, age). Also, a property inherent in an entity or associated with that entity for database purposes.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Authentication	<p>1) A security service that verifies an individual's eligibility to receive specific categories of information.</p> <p>2) The process of verifying the identity or other attributes claimed by or assumed of an entity (user, process, or device), or to verify the source and integrity of data.</p>	<p>1) Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"</p> <p>2) CNSSI No. 4009 Committee on National Security Systems Glossary, https://www.cnss.gov/</p>
Authorized Software	Commercial Software, which the NRO has procured and deployed in accordance with rules and restrictions, set forth by the vendors or any custom software which NRO personnel have generated, either directly or through development contracts	NRO Directive 50-10, Software License and Copyright Statute Compliance
Automation	Conversion of a procedure, process, or equipment to automatic operation. When allied to telecommunications facilities, automation may include the conversion to automatic operation of the message processing at an exchange or remote terminal.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Bandwidth	The maximum rate at which an amount of data can be sent through a given transmission channel.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Benchmark	A procedure, problem or test that can be used to compare systems, components, processes, and so forth to each other or to a standard.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"

TERMS OF REFERENCE

Term	Definition	Source
Binning	The IT portfolio management phase that assigns IT investments to the governing Army IT MA or domain portfolio. The intent of the binning phase is to place Army IT investments within the appropriate IT Portfolio according to the capabilities that the system provides.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Broadcast	The transmission of radio, television, and data signals through the air waves or fiber optic cable.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Bureau of Industry and Security (BIS)	An agency of the United States Department of Commerce that deals with issues involving national security and high technology.	
Business Enterprise Architecture (BEA)	The EA for the DOD's business information infrastructure and includes processes, data, data standards, business rules, operating requirements, and information exchanges. The BEA serves as the blueprint to ensure the right capabilities, resources and materiel are rapidly delivered to our warfighters through ensuring accurate, reliable, timely and compliant information across the DOD.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Business process re-engineering	The fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance such as cost, quality, service, and speed. Re-engineering is part of what is necessary in the radical change of processes.	DODD 8000.01
Business/functional process improvement	A systematic, disciplined improvement approach that critically examines, rethinks, and redesigns mission-delivery processes in order to achieve improvements in performance in areas important to customers and stakeholders. (See also DODD 8000.01.)	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Charter	A document that contains details of a new service, a significant change or other significant project. Charters are typically authorized by service portfolio management or by a project management office. The term charter is also used to describe the act of authorizing the work required to complete the service change or project.	ITIL Glossary and Abbreviations, 2011
Chief Technology Officer (CTO)	Head officer in a technology team.	
Closed Application Programming Interface (API)	Synonym for Private or Proprietary API. See also Open API and Restricted API	

TERMS OF REFERENCE

Term	Definition	Source
Closed circuit television (CCTV)	Point-to-point signal transmission by cable or directional radiation where the audience is limited by physical control or nonstandard transmission.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Closed Source	Proprietary software owned by one organization. The term is typically used only in discussions that contrast open source software with proprietary software.	PC Magazine Encyclopedia, retrieved 06 Oct 2015, http://www.pcmag.com/encyclopedia/term/39845/closed-source
Closed Standard	See Proprietary Standard	
Cloud	[a] "datacenter full of servers that are connected to the Internet. Can include a wide area network (WAN) like the public Internet, or a private, national or global network. The term can also refer to a local area network (LAN) within an organization". The cloud model, for purposes of this report, is composed of three service models, and four deployment models identified in the Methodology Section	PC Magazine, 2015, http://www.pcmag.com/encyclopedia/term/39847/cloud
Cloud Computing	"cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. ... [The] cloud model, for purposes of this report, is composed of three service models, and four deployment models.	National Institute of Standards and Technology (NIST) Special Publication (SP) 800-145, "The NIST Definition of Cloud Computing", September 2011
Cloud Service Providers (CSPs)	Cloud service providers (CSP) are companies that offers network services, infrastructure, or business applications in the cloud. The cloud services are hosted in a data center than can be accessed by companies or individuals using network connectivity.	SDX Central, retrieved 1 Sep 2016 https://www.sdxcentral.com/cloud/definitions/what-are-cloud-service-providers/
Code	A set of instructions for a computer.	CNSSI No. 4009 Committee on National Security Systems Glossary, https://www.cnss.gov/

TERMS OF REFERENCE

Term	Definition	Source
Command and control	Exercise of authority and direction by a properly designated commander over assigned forces in the accomplishment of the mission. These functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures that are employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Command and control system	Any system of facilities, equipment (including hardware, firmware, and software), communications, procedures, and personnel available to commanders at all echelons and in all environments that is essential to plan, direct, and control operations conducted by assigned resources.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Command, control, communications and computer (C4) systems	Integrated systems of doctrine, procedures, organizational structures, personnel, equipment, facilities, communications, and computers.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Commercial	Buying and selling; business; commerce.	PC Magazine Encyclopedia, retrieved 06 Oct 2015, http://www.pcmag.com/encyclopedia/term/40056/commercial
Commercial computer software	(a)(1) "Commercial computer software" means software developed or regularly used for non-governmental purposes which— (i) Has been sold, leased, or licensed to the public; (ii) Has been offered for sale, lease, or license to the public; (iii) Has not been offered, sold, leased, or licensed to the public but will be available for commercial sale, lease, or license in time to satisfy the delivery requirements of this contract; or (iv) Satisfies a criterion expressed in paragraph (a)(1)(i), (ii), or (iii) of this clause and would require only minor modification to meet the requirements of this contract.	DFARS 252.227-7014 "Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation." http://www.acq.osd.mil/dpap/dars/dfars/html/current/252227.htm#252.227-7014

TERMS OF REFERENCE

Term	Definition	Source
Commercial Computer Software Licenses (Category of Data Rights)	Applies to any commercial computer software or software documentation. Managed as specified in the commercial license offered to the public.	Defense Acquisition University's Acquimedia https://dap.dau.mil/acquimedia/Pages/ArticleDetails.aspx?aid=bc8736d5-0c9a-4296-8541-a2e9e120c725
Commercial Software	<p>1) Software that is designed and developed for sale to the general public.</p> <p>2) “Commercial software is software developed by a business as part of its business. Most commercial software is proprietary, but there is commercial free software, and there is noncommercial non-free software.”</p> <p>Note: commercial software is not the same as proprietary software</p>	<p>1) PC Magazine Encyclopedia, http://www.pcmag.com/encyclopedia/term/40059/commercial-software</p> <p>2) The Gnu Project, http://www.gnu.org/philosophy/categories.en.html</p>
Commercial Technical Data License Rights (Category of Data Rights)	Applies to technical data related to commercial items (developed at private expense). Managed in the same manner as Limited Rights.	Defense Acquisition University's Acquimedia https://dap.dau.mil/acquimedia/Pages/ArticleDetails.aspx?aid=bc8736d5-0c9a-4296-8541-a2e9e120c725
Commercially Supported Open Source Software	Open Source Software that has support provided by a company for a fee similar to support provided by proprietary software vendors.	Anthony I. Wasserman, Community and Commercial Strategies in Open Source Software, http://repository.cmu.edu/cgi/viewcontent.cgi?article=1171&context=silicon_valley

TERMS OF REFERENCE

Term	Definition	Source
Commercial-off-the-Shelf (COTS)	<p>1) A software and/or hardware product that is commercially ready-made and available for sale, lease, or license to the general public.</p> <p>2) Software that is readily available from the commercial vendors.</p> <p>3) Any item, other than real property, that is of a type customarily used by the general public for nongovernmental purposes, and that has been sold, leased, or licensed to the general public; is sold, leased, or licensed in substantial quantities in the commercial marketplace; and is offered to the Government, without modification, in the same form in which it is sold, leased, or licensed in the commercial marketplace.</p>	<p>1) CNSSI No. 4009 Committee on National Security Systems Glossary, https://www.cnss.gov/</p> <p>2) NRO Directive 50-10, Software License and Copyright Statute Compliance</p> <p>3) OMB A-11</p>
Communications	See telecommunications.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Communications network	A set of products, concepts, and services that enables the connection of computer systems for the purpose of transmitting data and other forms (for example, voice and video) among the systems.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Communications security (COMSEC)	Measures and controls taken to deny unauthorized persons information derived from telecommunications and to ensure the authenticity of such telecommunications. COMSEC includes cryptosecurity, transmission security, emission security, and physical security of COMSEC material.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Communications systems	A set of assets (transmission media, switching nodes, interfaces, and control devices) that establishes linkage between users and devices.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Communities of Interest (COIs)	The inclusive term used to describe collaborative groups of users who must exchange information in pursuit of their shared goals, interests, missions, or business processes and who therefore must have shared vocabulary for the information they exchange.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"

TERMS OF REFERENCE

Term	Definition	Source
Community of Practice (CoP)	A CoP is a group of people who regularly interact to collectively learn, solve problems, build skills and competencies, and develop best practices around a shared concern, goal, mission, set of problems, or work practice. CoPs cut across formal organizational structures and increase individual and organizational agility and responsiveness by enabling faster learning, problem solving, and competence building; greater reach to expertise across the force; and quicker development and diffusion of best practices. CoP structures range from informal to formal and may also be referred to as structured professional forums, knowledge networks, or collaborative environments.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Community Supported Open Source Software	Open Source Software that is provided "as is" and does not provide any official support as can be expected of commercial software vendors. Support is provided by the software developer and user community.	Anthony I. Wasserman, Community and Commercial Strategies in Open Source Software, http://repository.cmu.edu/cgi/viewcontent.cgi?article=1171&context=silicon_valley
Compatibility	The capability of two or more items or components of equipment or material to exist or function in the same system or environment without mutual interference.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Compliance	A system that meets, or is implementing an approved plan to meet, all applicable TA mandates.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"

TERMS OF REFERENCE

Term	Definition	Source
Component	<p>1) An assembly or any combination of parts, subassemblies, and assemblies mounted together in manufacture, assembly, maintenance, or rebuild.</p> <p>2) an entity with discrete structure, such as an assembly or software module, within a system considered at a particular level of analysis</p> <p>3) A component is a software object, meant to interact with other components, encapsulating certain functionality or a set of functionalities. A component has a clearly defined interface and conforms to a prescribed behavior common to all components within an architecture. Multiple components may be composed to build other components.</p>	<p>1) Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"</p> <p>2) ISO/IEC 15026:1998 Information technology -- System and software integrity levels, 3.1</p> <p>3) The Common Component Architecture, http://www.cca-forum.org/glossary/index.html</p>
Component Interface	The component interface is a set of methods supported by a component, and type definitions for the data used for arguments to those methods. An interface itself is a type and can be an argument for a component method.	The Common Component Architecture, http://www.cca-forum.org/glossary/index.html
Concept	A document or theory that translates a vision or visions into a more-detailed, but still abstract, description of some future activity or end-state, principally concerned with a three-15-year time frame.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Configuration	An expression in functional terms (that is, expected performance) and physical terms (that is, appearance and composition).	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Conformance	Fulfillment by a product, process, systems, or service of a specified set of requirements.	http://www.w3.org/QA/glossary
Conformance Requirement	Term used to describe a necessary condition of a specification imposed on implementations.	http://www.w3.org/QA/glossary

TERMS OF REFERENCE

Term	Definition	Source
Contributor Agreements	Many open source projects will only accept patches (code contributions or documentation contributions) from people who have submitted a legal document known as a contributor agreement. Contributor agreements are not open source licenses — rather, they are a way for the contributor to tell the project that it has the right to distribute the new contributions under the project's existing open source license. (Some contributor agreements also allow for the project to distribute the contributions under other open source licenses too, which enables projects to change their license in the future, and some agreements even allow the project to distribute the contributions under any license the project wants.) There are two kinds of contributor agreements. In a Contributor License Agreement (CLA) and Copyright Assignment Agreement (CAA).	Open Source Initiative, http://opensource.org/faq
Contributor License Agreement (CLA)	In a Contributor License Agreement (CLA), the original contributor retains copyright ownership of their contributions, but grants the project a broad set of rights such that the project can incorporate and distribute the contributions as it needs to.	Open Source Initiative, http://opensource.org/faq
Copyleft	Refers to licenses that allow derivative works but require them to use the same license as the original work.	The Free Software Foundation http://www.fsf.org/
Copylefted software	Copylefted software is free software whose distribution terms ensure that all copies of all versions carry more or less the same distribution terms. This means, for instance, that copyleft licenses generally disallow others to add additional requirements to the software (though a limited set of safe added requirements can be allowed) and require making source code available. This shields the program, and its modified versions, from some of the common ways of making a program proprietary.	The Gnu Project, http://www.gnu.org/philosophy/categories.en.html
Copyright	Copyright is a form of protection grounded in the U.S. Constitution and granted by law for original works of authorship fixed in a tangible medium of expression. Copyright covers both published and unpublished works.	The US Copyright Office http://copyright.gov/help/faq/faq-general.html#what
Copyright Assignment Agreement (CAA)	In a Copyright Assignment Agreement (CAA), the contributor actually transfers copyright ownership of the contributions to the project, who can then license it however they want since they own it (but a CAA typically grants very broad non-exclusive rights back to the contributor so that they too can use, distribute, sublicense etc. their contribution freely).	Open Source Initiative, http://opensource.org/faq

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Term	Definition	Source
Credential	Evidence or testimonials that support a claim of identity or assertion of an attribute and usually are intended to be used more than once.	CNSSI No. 4009 Committee on National Security Systems Glossary, https://www.cnss.gov/
Critical Infrastructure Cyber Community (C3)	A third party cyber volunteer group that partners with DHS to promote the NIST cybersecurity framework.	
Critical Infrastructure Partnership Advisory Council (CIPAC)	DHS created council that facilitates the interaction between governmental entities and representatives from the community of critical infrastructure owners and operators.	
Custom Software	software product developed for a specific application from a user requirements specification	ISO/IEC 25000:2005 Software Engineering -- Software product Quality Requirements and Evaluation (SQuaRE) -- Guide to SQuaRE, 4.8
Cyber	The interrelationship between hardware (the internet), software, (the web) and people (users, programmers, etc.) to achieve a virtual and physical objective.	
Cyber Space	"the theoretical virtual environment where electronic communication between computer networks occurs"	Oxford Dictionary, August 2015
Cybersecurity	"cybersecurity is the collection of tools, policies, security concepts, security safeguards, guidelines, risk management approaches, actions, training, best practices, assurance and technologies that can be used to protect the cyber environment and organization and user's assets. [these are used] to ensure the attainment and maintenance of the security properties of the organization and user's assets against relevant security risks in the cyber environment"	International Technological University, 2015
Cybersecurity Information Sharing Act of 2015 (CISA 2015)	A Senate bill that outlines a greater relationship between the public and private via information sharing.	

TERMS OF REFERENCE

Term	Definition	Source
Data	The representation of facts, concepts, or instructions in a formalized manner which is suitable for communication, interpretation, or processing by humans or by automatic means. Any representations such as characters or analog quantities to which meaning is, or might be, assigned.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Data element	A basic information unit template built on standard semantics and structures that in turn governs the distinct values of one or more columns of data within a row of data within a database table or a field within a file.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Data management	The process of creating a basis for posting, sorting, identifying and organizing the vast quantities of data available to DoD.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Data model	A graphical and textual representation of data needed by an organization to represent achievement of its mission, functions, goals, objectives, and strategies. A data model is represented by its entities, attributes, and relationships among its entities. In the relational model of data, entities are tables, attributes are columns, and relationships are primary and foreign key pairs. Data models may be enriched beyond data structures with both constraints and embedded processes.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"

TERMS OF REFERENCE

Term	Definition	Source
Data Rights	<p>Data Rights is a shorthand way to refer to the Government's license rights in two major categories of valuable intellectual property:</p> <p>1) Technical Data includes any recorded information of a scientific or technical nature (e.g., product design or maintenance data, computer databases, and computer software documentation).</p> <p>2) Computer Software includes executable code, source code, code listings, design details, processes, flow charts, and related material.</p> <p>Only under very unique circumstances does the Government acquire title to or ownership of technical data or computer software developed under DoD contracts – even if the Government funded 100% of the development. Instead, the Government acquires a license to use, release, or disclose that technical data or computer software to persons who are not Government employees. Therefore, the DoD often negotiates over license rights and not ownership of technical data or computer software to be delivered under a contract. Data Rights for technical data and computer software fall into eight categories: Unlimited Rights, Government Purpose License Rights, Limited Rights, Restricted Rights, Specifically Negotiated License Rights, Small Business Innovative Research (SBIR) Data Rights, Commercial Technical Data License Rights, and Commercial Computer Software Licenses.</p>	<p>Defense Acquisition University's Acquimedia https://dap.dau.mil/acquimedia/Pages/ArticleDetails.aspx?aid=bc8736d5-0c9a-4296-8541-a2e9e120c725</p>
Database	<p>A collection of interrelated data, often with controlled redundancy, organized according to a schema to serve one or more applications.</p>	<p>Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"</p>
Defense Information Security Agency (DISA)	<p>The agency responsible for providing global IT infrastructure for information sharing and communication across the Department of Defense, from the President on down.</p>	<p>USA.gov https://www.usa.gov/federal-agencies/defense-information-systems-agency</p>

TERMS OF REFERENCE

Term	Definition	Source
Defense Intelligence Information Enterprise (DI2E)	<p>The component of the Defense Intelligence Enterprise that:</p> <ul style="list-style-type: none"> • Transforms collected information into forms suitable for further analysis and/or action by man or machine • Provides the ability to use multiple sources to integrate, evaluate, interpret and predict the current & future ops/physical environment to satisfy user requirements • Provides the ability to present, distribute or make available intelligence, info and environmental content and products that enable understanding of the environment to military and national decision makers. <p>The DI2E consists of... people, technology, policy, doctrine, activities, architectures, standards, specifications, tools, and governance processes.</p>	
Defense Intelligence Information Enterprise Framework	The standards, specifications, reference implementation, and processes necessary to federate the DI2E architectures.	
DI2E Enterprise Service	The services that exist within the Defense Intelligence Enterprise that are governed by the DI2E. These services shall conform to the standards and specifications established by DI2E Framework Reference Implementation Profiles. The services shall be developed in a service oriented manner, be registered and accessible in the Enterprise Registry, and be tested and certified for reuse. DI2E Enterprise Services may be core or common services and may exist in any layer of the DI2E- F SV-4.	
Department of Commerce (DOC)	U.S. Government Department that sets regulations for trade, and oversees imported and exported goods, among other roles.	
Department of Defense (DoD)	The U.S. Department that oversees the military, and foreign focused national security missions.	
Department of Energy (DoE)	The U.S. Department that oversees U.S. energy needs and energy producing technologies.	
Department of Homeland Security (DHS)	The U.S. Department charged with protecting critical infrastructure, and the domestic realm.	

TERMS OF REFERENCE

Term	Definition	Source
Development	<p>1) The Process responsible for creating or modifying an IT Service or Application. Also used to mean the Role or group that carries out Development work.</p> <p>2) The process of working out and extending the theoretical, practical, and useful applications of a basic design, idea, or scientific discovery. Design, building, modification, or improvement of the prototype of a vehicle, engine, instrument, or the like as determined by the basic idea or concept. Includes all efforts directed toward programs being engineered for Service use that have not yet been approved for procurement or operation, and all efforts directed toward development engineering and test of systems, support programs, vehicles, and weapons that have been approved for production and Service deployment.</p>	<p>1) ITIL V3 Glossary v3.1.24, 11 May 2007</p> <p>2) ITIL V3 Glossary v3.1.24, 11 May 2007</p>
Dual Licensing	<p>“Dual licensing is an open source business model where a vendor makes its software available both via an open source license and via a different model that may incur a license fee.”</p> <p>Dual licensed software may or may not have the complete feature set available in the Open Source version as is available in the commercially licensed version.</p>	<p>Peter LoBrutto “What Is Open Source Dual Licensing?” http://zenoss.com/blog/2016/08/25/open-source-dual-licensing/</p>
Encryption	<p>The process of changing plaintext into ciphertext for the purpose of security or privacy.</p>	<p>CNSSI No. 4009 Committee on National Security Systems Glossary, https://www.cnss.gov/</p>
End-to-End Encryption	<p>Encryption of information at its origin and decryption at its intended destination without intermediate decryption.</p>	<p>CNSSI No. 4009 Committee on National Security Systems Glossary, https://www.cnss.gov/</p>
End Item	<p>The final production product when assembled, or completed, and ready for issue or deployment.</p>	<p>https://dap.dau.mil/glossary/pages/1845.aspx</p>

TERMS OF REFERENCE

Term	Definition	Source
End User License Agreement (EULA)	<p>1) Contract between the licensor and purchaser, establishing the purchaser's right to use the software. The license may define ways under which the copy can be used, in addition to the automatic rights of the buyer including the first sale doctrine and 17 U.S.C. § 117 (freedom to use, archive, re-sale, and backup).</p> <p>2) the agreement made by a user before being granted permission to use computer software</p>	<p>1) https://en.wikipedia.org/wiki/End-user_license_agreement</p> <p>2) Dictionary.com, "eula," in Collins English Dictionary - Complete & Unabridged 10th Edition. Source location: HarperCollins Publishers. http://dictionary.reference.com/browse/eula.</p>
Enterprise Software Asset Management	An existing office or newly established office that would provide the configuration management of all COTS software licenses for the NRO.	NRO Directive 50-10, Software License and Copyright Statute Compliance
Export Administrative Regulations (EAR)	Trade regulation which regulates the export of “dual-use” items (commercial and military).	
Federal Information Security Management Act (FISMA)	An act that requires each federal agency to develop, document, and implement an agency-wide program to provide information security for the information systems that support the operations and assets of the agency.	
Federal Risk and Authorization Management Program (FedRAMP)	A government-wide program that provides a standardized approach to security assessment, authorization, and continuous monitoring for cloud products and services.	
Flaw	An error of commission, omission, or oversight in a system that allows protection mechanisms to be bypassed.	Department of Defense Standard (DoD) 5200.28-STD Trusted Computer System Evaluation Criteria (The Orange Book), Dec 1985

TERMS OF REFERENCE

Term	Definition	Source
Foundation-based OSS Project	A foundation-based OSS project is managed and supported by a non-profit organization that provides governance and support for the project. The foundation is normally supported by multiple corporations. Foundations normally support large complex projects (such as the Linux Foundation’s support of the kernel) or multiple projects (like those supported by the Apache Software Foundation). The majority of support is via community support methods although some foundations may offer commercial support for their projects. See Independent OSS Project	Adapted from Wasserman, A.I., “Community and Commercial Strategies in Open Source Software”, http://repository.cmu.edu/silicon_valley/172/
Framework	A framework is a specific implementation of a component architecture NOTE: Also see Software Framework	The Common Component Architecture, http://www.cca-forum.org/glossary/index.html
Free Software	1) Software that is free of charge. 2) The Free Software Foundation defines Free Software by the freedom for the user not the price of the software.	1) PC Magazine Encyclopedia, http://www.pcmag.com/encyclopedia/term/55890/free-software 2) The Gnu Project, http://www.gnu.org/philosophy/free-sw.html
Free Software Foundation (FSF)	“The Free Software Foundation (FSF) is a nonprofit with a worldwide mission to promote computer user freedom and to defend the rights of all free software users.”	The Free Software Foundation http://www.fsf.org/
Free/Libre/Open Source Software (FLOSS)	A term that is intended to be inclusive of the Free Software and Open Source Software movements. FLOSS is the Free Software Foundation’s preferred term but FOSS is more commonly used.	The Gnu Project, http://www.gnu.org/philosophy/floss-and-foss.en.html
Free/Open Source Software (FOSS)	A synonym for FLOSS term that is intended to be inclusive of the Free Software and Open Source Software movements. FLOSS is the Free Software Foundation’s preferred term but FOSS is more commonly used.	The Gnu Project, http://www.gnu.org/philosophy/floss-and-foss.en.html

TERMS OF REFERENCE

Term	Definition	Source
Freeware	<p>1) Software that is distributed without charge and which may be redistributed without charge by its users. However, ownership is retained by the developer who may change future releases from freeware to a paid product.</p> <p>2) The term “freeware” has no clear accepted definition, but it is commonly used for packages which permit redistribution but not modification (and their source code is not available).</p>	<p>1) PC Magazine Encyclopedia, retrieved 06 Oct 2015, http://www.pcmag.com/encyclopedia/term/43498/freeware</p> <p>2) The Gnu Project, http://www.gnu.org/philosophy/categories.en.html</p>
Full Costs	<p>The term "full costs," when applied to the expenses incurred in the operation of an information processing service organization (IPSO), is comprised of all direct, indirect, general, and administrative costs incurred in the operation of an IPSO. These costs include, but are not limited to, personnel, equipment, software, supplies, contracted services from private sector providers, space occupancy, intra-agency services from within the agency, inter-agency services from other Federal agencies, other services that are provided by State and local governments, and Judicial and Legislative branch organizations.</p>	<p>OMB Circular A-130, https://www.whitehouse.gov/omb/circulars_a130_a130trans4/</p>
GNU	<p>see Gnu’s Not Unix</p>	<p>http://www.gnu.org/</p>
GNU General Public License (GLP)	<p>"The GNU General Public License is a free, copyleft license for software and other kinds of works." The GPL emphasis is on freedom for the user and to ensure the source code, along with all derivative code, remains open.</p>	<p>The Gnu Project, http://www.gnu.org/licenses/gpl-3.0.en.html</p>
GNU Project	<p>GNU is project to develop and release an operating system that is comprised exclusively of software that meets the Free Software Foundation’s definition of free software.</p>	<p>The Gnu Project, http://www.gnu.org/</p>
GNU software	<p>“GNU software is software that is released under the auspices of the GNU Project. The Free Software Foundation’s Free Software Directory identifies all GNU packages. Most GNU software is copylefted, but not all; however, all GNU software must be free software.”</p>	<p>The Gnu Project, http://www.gnu.org/philosophy/categories.en.html</p>
GNU/Linux	<p>“Linux distributions that is comprised exclusively of software that meets the Free Software Foundation’s (FSF) definition of free software. Many distributions of Linux do not meet this definition because they contain software that is not compatible with the FSF’s free software criteria.”</p>	<p>The Gnu Project, http://www.gnu.org/</p>

TERMS OF REFERENCE

Term	Definition	Source
Gnu's Not Unix (GNU)	GNU is an operating system that is comprised exclusively of software that meets the Free Software Foundation's definition of free software.	The Gnu Project, http://www.gnu.org/
Governance	Setting strategy and policy, prioritizing enterprise efforts, assigning responsibilities and authorities, allocating resources and communicating a shared vision. Governance provides oversight of management activities.	Joint C2 MG Terms of Reference V0 90 7 Aug 2012
Government Furnished Equipment (GFE)	See Government Furnished Property (GFP)	
Government Furnished Property (GFP)	Property in the possession of, or acquired directly by, the government, and subsequently delivered to, or otherwise made available to, the contractor.	DAU Glossary https://dap.dau.mil/glossary/Pages/1976.aspx
Government Purpose License Rights (Category of Data Rights)	This right involves the right to use, duplicate, or disclose technical data for Government purposes only, and to have or permit others to do so for Government purposes only. Government purposes include competitive procurement, but do not include the right to permit others to use the data for commercial purposes.	Defense Acquisition University's Acquipedia https://dap.dau.mil/acquipedia/Pages/ArticleDetails.aspx?aid=bc8736d5-0c9a-4296-8541-a2e9e120c725
Government-off-the-Shelf (GOTS)	<p>1) Government off-the-shelf (GOTS) is a term for software and hardware government products that are ready to use. They were created and are owned by the government.</p> <p>2) A software and/or hardware product that is developed by the technical staff of a Government organization for use by the U.S. Government. GOTS software and hardware may be developed by an external entity, with specification from the Government organization to meet a specific Government purpose, and can normally be shared among Federal agencies without additional cost. GOTS products and systems are not commercially available to the general public. Sales and distribution of GOTS products and systems are controlled by the Government.</p>	<p>1) Defense Acquisition Portal, https://acc.dau.mil/CommunityBrowser.aspx?id=496317</p> <p>2) CNSSI No. 4009 Committee on National Security Systems Glossary, https://www.cnss.gov/</p>
Guideline	<p>General statements, recommendations, or administrative instructions designed to achieve the policy's objectives by providing a framework within which to implement procedures.</p> <ul style="list-style-type: none"> • A guideline can change frequently based on the environment and should be reviewed more frequently than standards and policies. • A guideline is not mandatory, rather a suggestion of a best practice. Hence "guidelines" and "best practice" are interchangeable 	Saint Louis University "Policies and Processes" http://www.slu.edu/its/policies-and-processes

TERMS OF REFERENCE

Term	Definition	Source
Homeland Open Security Technology (HOST)	A program of DHS that researches cybersecurity solutions that utilize OSS.	
Hybrid Software	Software developed using code from a number of sources, including open source, third-party code (that may include closed source software), and internally developed code. The internally developed code may contributed to the Open Source Community or may be kept as private code.	Developed from multiple sources including: - BlackDuck, retrieved 9 Oct 2016, (https://www.blackducksoftware.com/osrc/learningcenter/definitions/multisource/) -Embedded Computing Design "Hybrid software development: Mixing open source with other code", Published May 13, 2009, retrieved 9 Oct 2016, (http://embedded-computing.com/article-id/?3924=)
Independent OSS Project	Projects that are developed and maintained by a community of volunteers, with a small number of people on each project authorized to commit changes to the main code base. Support is primarily from the developers and the user community. See Foundation-based OSS Project	Adapted from Wasserman, A.I., "Community and Commercial Strategies in Open Source Software", http://repository.cmu.edu/silicon_valley/172/
Infrastructure as a Service (IaaS)	The capability provided to the consumer is to provision processing, storage, networks, and other fundamental computing resources where the consumer is able to deploy and run arbitrary software, which can include operating systems and applications. The consumer does not manage or control the underlying cloud infrastructure but has control over operating systems, storage, and deployed applications; and possibly limited control of select networking components (e.g., host firewalls).	National Institute of Standards and Technology (NIST) Special Publication (SP) 800-145, "The NIST Definition of Cloud Computing", September 2011

TERMS OF REFERENCE

Term	Definition	Source
Integration	<p>1) the process of combining software components, hardware components, or both into an overall system</p> <p>2) The process of fitting together the various components of a system so that the entire system works as a whole.</p> <p>3) The combining of hardware and software components so that they work together.</p> <p>NOTE: Integration is different from assembly, such as on a production assembly line in a factory. Integration is an effort to combine new or modified components and to ensure the resulting system works. Assembly takes components known to work together and combines them.</p>	<p>1) Systems and software engineering — Vocabulary Geneva, Switzerland: International Organization for Standards (ISO) / International Electrotechnical Commission (IEC) /Institute of Electrical & Electronics Engineers (IEEE) Computer Society, ISO/IEC/IEEE 24765:2010(E)</p> <p>2) Capers Jones. 1994. Assessment and Control of Software Risks. Upper Saddle River, NJ: Yourdon Press, Prentice Hall.</p> <p>3) PC Magazine Encyclopedia, http://www.pcmag.com/encyclopedia/term/65200/integration</p>
Integration Process	<p>The purpose of the Integration Process is to assemble a system that is consistent with the architectural design. This process combines system elements to form complete or partial system configurations in order to create a product specified in the system requirements.</p>	<p>Systems and software engineering - System life cycle processes. Geneva, Switzerland: International Organization for Standards (ISO)/Institute of Electrical & Electronics Engineers (IEEE) Computer Society, ISO/IEEE 15288:2008(E).</p>

TERMS OF REFERENCE

Term	Definition	Source
Intellectual Property (IP)	<p>Intellectual property refers to creations of the mind: inventions; literary and artistic works; and symbols, names and images used in commerce. Intellectual property is divided into two categories:</p> <ul style="list-style-type: none"> • Industrial Property includes patents for inventions, trademarks, industrial designs and geographical indications. • Copyright covers literary works (such as novels, poems and plays), films, music, artistic works (e.g., drawings, paintings, photographs and sculptures) and architectural design. 	World Intellectual Property Organization, "What is Intellectual Property?", retrieved 09 Oct 2015, http://www.wipo.int/edocs/pubdocs/en/intproperty/450/wipo_pub_450.pdf
Interface	Common boundary between independent systems or modules where interactions take place.	CNSSI No. 4009 Committee on National Security Systems Glossary, https://www.cnss.gov/
International Traffic in Arms Regulations (ITAR)	Trade regulation which controls the export and import of defense-related articles and services on the United States Munitions List.	
Interoperability	<p>The ability of information systems to integrate many disparate automated capabilities into a net-centric enterprise that can work together to create new intelligence and make and implement decisions at network speed. Interoperability comprises three essential sub elements:</p> <ul style="list-style-type: none"> • Semantic Interoperability: The ability of each sending party to communicate data and have receiving parties understand the message in the sense intended by the sending party. • Technical Interoperability: The ability for different technologies to communicate and exchange data based upon well-defined and widely adopted interface standards. _Toc310483918 • Policy Interoperability: Common business processes related to the transmission, receipt, and acceptance of data among participants. 	Adapted from DoD Instruction 8500.02aa, Draft September 20, 2011.
Joint Information Environment (JIE)	DoD cybersecurity and information sharing concept that would allow all .mil domains to commune and contribute to one hub of information and data.	
Library	A collection of software routines that programmers incorporate into their applications. The library routines are linked into the program when it is compiled.	PC Magazine Encyclopedia, http://www.pcmag.com/encyclopedia/term/46063/library

TERMS OF REFERENCE

Term	Definition	Source
Libre Software	A synonym for Free Software that emphasis the Free is about the liberties associated with software, not the price.	The Free Software Foundation Europe, https://fsfe.org/freesoftware/basics/comparison.en.html
License	1) to give permission to; authorize 2) the legal right to use a patent owned by another	1 & 2) Random House Kernerman Webster's College Dictionary
Life Cycle	Evolution of a system, product, service, project or other human-made entity from conception through retirement	ISO/IEC 12207 "Software Life Cycle Process"
Limited Rights (Category of Data Rights)	A limited rights agreement permits the Government to use proprietary technical data in whole or in part. It also means that the Government has to obtain the expressed permission of the party providing the technical data to release it, or disclose it, outside the Government.	Defense Acquisition University's Acquimedia https://dap.dau.mil/acquimedia/Pages/ArticleDetails.aspx?aid=bc8736d5-0c9a-4296-8541-a2e9e120c725
Linux	A Unix compatible operating system (OS). The Linux OS is not comprised of any user applications. Linux is freely available and is licensed under the GNU Public License (GPL) version 2.	
Linux Distribution	A Linux distribution is comprised of the Linux Operating System (OS) and applications and services (such as web servers, databases, spreadsheet applications). Linux distributions can be general purpose systems or highly specialized. While the Linux OS is free software, the distributions may contain Open Source Software (OSS) or even proprietary software. Some Linux distributions are commercial products and have commercial support (such as Red Hat) while others are exclusively community supported (such as CentOS).	
Local Area Network (LAN)	a computer network located on a user's premises within a limited geographical area. NOTE: Communication within a local area network is not subject to external regulations; however, communication across the LAN boundary may be subject to some form of regulation.	ISO/IEC 2382-1:1993 Information technology--Vocabulary--Part 1: Fundamental terms

TERMS OF REFERENCE

Term	Definition	Source
Maintenance	Action necessary to retain or restore an item to a specified condition.	Defense Acquisition Portal, https://dap.dau.mil/glossary/pages/2184.aspx
Measure	A measure is a concrete, objective attribute, such as the percentage of systems within an organization that are fully patched, the length of time between the release of a patch and its installation on a system, or the level of access to a system that a vulnerability in the system could provide.	Cyber Security Metrics And Measures by Paul E. Black, Karen Scarfone and Murugiah Souppaya National Institute of Standards and Technology, Gaithersburg, Maryland (https://hissa.nist.gov/~black/Papers/cyberSecurityMetrics2007proof.pdf)
Metric	A metric is an abstract, somewhat subjective attribute, such as how well an organization's systems are secured against external threats or how effective the organization's incident response team is. An analyst can approximate the value of a metric by collecting and analyzing groups of measures.	Cyber Security Metrics And Measures by Paul E. Black, Karen Scarfone and Murugiah Souppaya National Institute of Standards and Technology, Gaithersburg, Maryland (https://hissa.nist.gov/~black/Papers/cyberSecurityMetrics2007proof.pdf)
Module	An independently compilable software component made up of one or more procedures or routines or a combination of procedures and routines.	Defense Acquisition Portal, https://dap.dau.mil/glossary/pages/2273.aspx
Multi-Source Software	See Hybrid	
National Cybersecurity and Communications Integration Center (NCCIC)	DHS agency that shares information among the public and private sectors to provide understanding of cybersecurity and communications vulnerabilities, and solutions.	
National Infrastructure Advisory Council (NIAC)	Provides the President, through the Secretary of Homeland Security, with advice on the security of the critical infrastructure sectors and their information systems.	

TERMS OF REFERENCE

Term	Definition	Source
National Infrastructure Coordinating Centers (NICC)	A coordination and information sharing operations center that maintains situational awareness of the nation’s critical infrastructure for the federal government.	
National Infrastructure Protection Plan (NIPP)	A document that outlines how government and private sector participants in the critical infrastructure community work together to manage risks and achieve security and resilience outcomes.	
National Institute of Standards and Technology (NIST)	Government institute that creates a standards for many government of the shelf software and technology.	
National Nuclear Security Administration (NNSA)	Supports U.S. national security with the use of nuclear energy and technology. Manages U.S nuclear stockpile and capabilities.	
Need	Needs do not indicate a particular solution; they simply describe the business need.	Requirements: An introduction http://www.ibm.com/developerworks/rational/library/4166.html
Non-Developmental Items (NDI)	Any previously developed item of supply used exclusively for government purposes by a federal agency, a State or local government, or a foreign government with which the United States has a mutual defense cooperation agreement.	Defense Acquisition Portal, https://dap.dau.mil/glossary/pages/2294.aspx
Non-Free Software	See Proprietary Software	
Non-Person Entity (NPE)	[a]n entity with a digital identity that acts in cyberspace, but is not a human actor. This can include organizations, hardware devices, software applications, and information artifacts	National Strategy for Trusted Identities in Cyberspace, http://www.nist.gov/nstic/
Open Core	A business and licensing model where a company releases part of their software under an Open Source license and sells additional features under a closed source license. NOTE: See also Single-vendor Commercial Open Source and Dual Licensing	Andrew Lampitt, "Open-Core Licensing (OCL): Is this Version of the Dual License Open Source Business Model the New Standard?", 29 Aug 2008 (http://alampitt.typepad.com/lampitt_or_leave_it/2008/08/open-core-licen.html)

TERMS OF REFERENCE

Term	Definition	Source
Objective Requirement	An Objective requirement specifies a feature or function that is desired or expected. See Threshold Requirement	Nation Security Agency (NSA) Data at Rest Capability Package (https://www.nsa.gov/resources/everyone/csfc/capability-packages/assets/files/dar-cp.pdf)
Open Application Programming Interface (API)	<p>1) An API that is freely available to third parties.</p> <p>2) An open APIs is an interface that has been designed to be easily accessible by the wider population of Web and mobile developers. This means an open API may be used both by developers inside the organization that published the API or by any developers outside that organization who wish to register for access to the interface.</p> <p>NOTE: See also Closed API and Restricted API</p>	<p>1) The P2P Foundation, http://p2pfoundation.net/Open_API</p> <p>2) The API Academy, "API Strategy 201: Private APIs vs. Open APIs", http://www.apiacademy.co/resources/api-strategy-lesson-201-private-apis-vs-open-apis/</p>
Open Software	A software program in which the source code is available to the public.	PC Magazine Encyclopedia, retrieved 06 Oct 2015, http://www.pcmag.com/encyclopedia/term/68240/open-software
Open Source Definition (OSD)	The legal criteria that classify licenses as Open Source and maintained by the Open Source Initiative (OSI).	Open Source Initiative, http://opensource.org/
Open Source Initiative (OSI)	The de facto legal authority on the Open Source Definition. Open Source licenses must adhere to the criteria in the Open Source Definition	Open Source Initiative, http://opensource.org/

TERMS OF REFERENCE

Term	Definition	Source
Open Source Software (OSS)	<p>1) "Open Source Software is software for which the human-readable source code is available for use, study, reuse, modification, enhancement, and redistribution by the users of that software"</p> <p>2) OSSI defines Open Source Software (OSS) as source code that is publicly available and meets the criteria listed in the Open Source Definition (OSD) as defined by the Open Source Initiative (OSI)</p> <p>3) Licensed software who's source code users are free to alter, share, and distribute.</p>	<p>1) DoD CIO Memorandum "Clarifying Guidance Regarding Open Source Software (OSS)", 16 Oct 2009, http://dodcio.defense.gov/Portals/0/Documents/OSSFAQ/2009OSS.pdf</p> <p>2) OSSI Definition</p> <p>3)</p>
Open Source Software Institute (OSSI)	Non-profit organization whose mission is to promote the usage and innovation of Open Source Software.	

TERMS OF REFERENCE

Term	Definition	Source
Open Standard	<p>1) The Digital Standards Organization defines free and open standard as follows:</p> <ul style="list-style-type: none"> • A free and open standard is immune to vendor capture at all stages in its life-cycle. Immunity from vendor capture makes it possible to freely use, improve upon, trust, and extend a standard over time. • The standard is adopted and will be maintained by a not-for-profit organization, and its ongoing development occurs on the basis of an open decision-making procedure available to all interested parties. • The standard has been published and the standard specification document is available freely. It must be permissible to all to copy, distribute, and use it freely. • The patents possibly present on (parts of) the standard are made irrevocably available on a royalty-free basis. • There are no constraints on the re-use of the standard. <p>The economic outcome of a free and open standard, which can be measured, is that it enables perfect competition between suppliers of products based on the standard.</p> <p>2) Specifications for hardware or software that are developed by a standards organization or a consortium involved in supporting a standard. Available to the public for developing compliant products, open standards imply "open systems;" that an existing component in a system can be replaced with that of another vendor. Although many vendors may have contributed to an open standard, and one may have contributed more than others and even have great influence, an open standard is not completely controlled by a single vendor. Contrast with proprietary standards.</p>	<p>1) The Digital Standards Organization, retrieved 06 Oct 2015, http://www.digistan.org/open-standard:definition</p> <p>2) PC Magazine Encyclopedia, retrieved 06 Oct 2015, http://www.pcmag.com/encyclopedia/term/48476/open-standards</p>
Open-Core	<p>A business and licensing model where a company releases part of their software under an Open Source license and sells additional features under a closed source license.</p>	<p>Andrew Lampitt, "Open-Core Licensing (OCL): Is this Version of the Dual License Open Source Business Model the New Standard?", 29 Aug 2008 (http://alampitt.typepad.com/lampitt_or_leave_it/2008/08/open-core-licen.html)</p>

TERMS OF REFERENCE

Term	Definition	Source
Original Equipment Manufacturer (OEM)	In its traditional definition, an original equipment manufacturer (OEM) is a company whose goods are used as components in the products of another company, which then sells the finished item to users.	Investopedia, http://www.investopedia.com/terms/o/oem.asp
Orphan Works	Orphan works are copyrighted works whose owners cannot be identified or located, making it impossible to negotiate terms for their use.	U.S. Copyright Office, Report on Orphan Works at 2 (2006), http://www.copyright.gov/orphan/orphan-report.pdf (“Orphan Works Report”).
Ownership	For US Government ownership of software or data see Data Rights	
Patent	<ul style="list-style-type: none"> • "A patent for an invention is the grant of a property right to the inventor, issued by the United States Patent and Trademark Office. Generally, the term of a new patent is 20 years from the date on which the application for the patent was filed in the United States or, in special cases, from the date an earlier related application was filed" • “What is granted is not the right to make, use, offer for sale, sell or import, but the right to exclude others from making, using, offering for sale, selling or importing the invention.” 	US Patent and Trademark Office http://www.uspto.gov/patents-getting-started/general-information-concerning-patents#heading-2
Pilot	<ul style="list-style-type: none"> • A limited Deployment of an IT Service, a Release or a Process to the Live Environment. A Pilot is used to reduce Risk and to gain User feedback and Acceptance. • A synonym for Pilot Project (see Pilot Project) • Different from prototyping which evaluates parts of a system outside of a live environment 	ITIL V3 Glossary v3.1.24, 11 May 2007
Pilot Project	<ul style="list-style-type: none"> • a project designed to test a preliminary version of an information processing system under actual but limited operating conditions and which will then be used to test the definitive version of the system • A synonym for Pilot (see Pilot) • Different from prototyping which evaluates parts of a system outside of a live environment 	ISO/IEC 2382-20:1990 Information technology--Vocabulary--Part 20: System development, 20.01.07

TERMS OF REFERENCE

Term	Definition	Source
Platform as a Service (PaaS)	The capability provided to the consumer is to deploy onto the cloud infrastructure consumer-created or acquired applications created using programming languages, libraries, services, and tools supported by the provider. The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, or storage, but has control over the deployed applications and possibly configuration settings for the application-hosting environment.	National Institute of Standards and Technology (NIST) Special Publication (SP) 800-145, "The NIST Definition of Cloud Computing", September 2011
Policy	A formal, brief, and high-level statement or plan that embraces an organization's general beliefs, goals, objectives, and acceptable procedures for a specified subject area. Policies always state required actions, and may include pointers to standards. Policy attributes include the following: <ul style="list-style-type: none"> • Require compliance (mandatory) • Failure to comply results in disciplinary action • Focus on desired results, not on means of implementation • Further defined by standards and guidelines 	Saint Louis University "Policies and Processes" http://www.slu.edu/its/policies-and-processes
Portfolio	Projects, programs, sub-portfolios, and operations managed as a group to achieve strategic objectives. See also program and project.	Project Management Institute (PMI) Lexicon of Project Management Terms http://www.pmi.org/
Portfolio Charter	A document issued by a sponsor that authorizes and specifies the portfolio structure and links the portfolio to the organization's strategic objectives.	Project Management Institute (PMI) Lexicon of Project Management Terms http://www.pmi.org/
Portfolio Management	The centralized management of one or more portfolios to achieve strategic objectives.	Project Management Institute (PMI) Lexicon of Project Management Terms http://www.pmi.org/
Portfolio Manager	The person or group assigned by the performing organization to establish, balance, monitor, and control portfolio components in order to achieve strategic business objectives.	Project Management Institute (PMI) Lexicon of Project Management Terms http://www.pmi.org/

TERMS OF REFERENCE

Term	Definition	Source
Post-production Software Support (PPSS)	Post Production Software Support (PPSS) is a key software support concept that includes the activities necessary to ensure that Systems Engineering and sustainment principles, processes and practices are applied to software. While the title indicates a focus on deployed software, the nature of software support is that critical activities occur throughout the acquisition process, in terms of planning, development of a support capability, and the effective deployment and maintenance of software resources.	Defense Acquisition University's Acquipedia, https://dap.dau.mil/acquipedia/Pages/ArticleDetails.aspx?aid=16b9d9bf-46ed-45a1-add9-c5ff9148a0f6
Presidential Policy Directive-Critical Infrastructure Security and Resilience (PPD-21)	Presidential Directive that compels all government agencies to research and implement cybersecurity measures.	
Private Application Programming Interface (API)	A private API is an interface that opens parts of an organization's backend data and application functionality for use by developers working within (or contractors working for) that organization. The new applications these developers create may be distributed publicly but the interface itself is unavailable to anyone not working directly for the API publisher. Synonym for Proprietary API	The API Academy, "API Strategy 201: Private APIs vs. Open APIs", http://www.apiacademy.co/resources/api-strategy-lesson-201-private-apis-vs-open-apis/
Private Software	<ul style="list-style-type: none"> • Private or custom software is software developed for one user (typically an organization or company). That user keeps it and uses it, and does not release it to the public either as source code or as binaries. • Software developed internally or by a third party for internal use by an organization for its sole use is considered private software. 	http://www.gnu.org/philosophy/categories.en.html
Procedure	Procedures describe the process: who does what, when they do it, and under what criteria. They can be text based or outlined in a process map. Represent implementation of Policy. <ul style="list-style-type: none"> • A series of steps taken to accomplish an end goal. • Procedures define "how" to protect resources and are the mechanisms to enforce policy. • Procedures provide a quick reference in times of crisis. • Procedures help eliminate the problem of a single point of failure. • Also known as a SOP (Standard Operating Procedure) 	Saint Louis University "Policies and Processes" http://www.slu.edu/its/policies-and-processes

TERMS OF REFERENCE

Term	Definition	Source
Profile	A set of one or more base standards, and/or profiles, and, where applicable, the identification of chosen classes, conforming subsets, options and parameters of those base standards, or profiles necessary to accomplish a particular function.	ISO/IEC TR 10000-1 and IC Glossary
Program	A group of related projects, subprograms, and program activities that are managed in a coordinated way to obtain benefits not available from managing them individually. NOTE: See also portfolio and project.	Project Management Institute (PMI) Lexicon of Project Management Terms http://www.pmi.org/
Project	A temporary endeavor undertaken to create a unique product, service, or result. See also portfolio and program.	Project Management Institute (PMI) Lexicon of Project Management Terms http://www.pmi.org/
Proof of Concept (POC)	Proof-of-Concept testing is performed at the conceptual project stage to verify initial assumptions relative to system and process performance.	Department of Energy Technology Readiness Assessment Guide, http://www2.lbl.gov/dir/assets/docs/TRL%20guide.pdf
Proprietary	Proprietary hardware and software are owned and controlled by a single organization or individual.	PC Magazine Encyclopedia, retrieved 06 Oct 2015, http://www.pcmag.com/encyclopedia/term/49867/proprietary
Proprietary Application Programming Interface (API)	Synonym for Private or Closed API. See also Open API and Restricted API	
Proprietary Protocol	A non-standard communications format and language owned by a single organization or individual.	PC Magazine Encyclopedia, retrieved 09 Oct 2015, http://www.pcmag.com/encyclopedia/term/49868/proprietary-protocol

TERMS OF REFERENCE

Term	Definition	Source
Proprietary software	<p>1) Software owned by a single organization or individual.</p> <p>2) Proprietary software is any software that is not free (meeting the four criteria of the FSF Free Software definition). Its use, redistribution or modification is prohibited, or requires you to ask for permission, or is restricted so much that you effectively can't do it freely.</p> <p>3) The hallmark of proprietary software licenses is that the software publisher grants the use of one or more copies of software under the end-user license agreement (EULA), but ownership of those copies remains with the software publisher (hence use of the term "proprietary"). This feature of proprietary software licenses means that certain rights regarding the software are reserved by the software publisher. Therefore, it is typical of EULAs to include terms which define the uses of the software, such as the number of installations allowed or the terms of distribution.</p> <p>NOTE: Proprietary software is not equivalent to commercial software.</p>	<p>1) PC Magazine Encyclopedia, http://www.pcmag.com/encyclopedia/term/49869/proprietary-software</p> <p>2) The Gnu Project, http://www.gnu.org/philosophy/categories.en.html</p> <p>3) https://en.wikipedia.org/wiki/Software_license</p>
Proprietary standard	<p>Specifications for hardware or software that are controlled by one company. When a proprietary standard such as Windows is widely used, it becomes a "de facto" standard even though it is not governed by a standards organization.</p>	<p>PC Magazine Encyclopedia, retrieved 06 Oct 2015, http://www.pcmag.com/encyclopedia/term/49870/proprietary-standards</p>
Prototype	<p>1) an experimental model, either functional or nonfunctional, of the system or part of the system.</p> <p>2) a preliminary type, form, or instance of a system that serves as a model for later stages or for the final, complete version of the system</p> <p>3) model or preliminary implementation of a piece of software suitable for the evaluation of system design, performance or production potential, or for the better understanding of the software requirements</p> <p>Note: A prototype is used to get feedback from users for improving and specifying a complex human interface, for feasibility studies, or for identifying requirements.</p>	<p>1) IEEE 1233, 1998 Edition (R2002) IEEE Guide for Developing System Requirements Specifications, 3.12</p> <p>2) ISO/IEC 24765, Software and Systems Engineering Vocabulary</p> <p>3) ISO/IEC 15910:1999 Information technology -- Software user documentation process, 4.41</p>

TERMS OF REFERENCE

Term	Definition	Source
Prototyping	<ul style="list-style-type: none"> a hardware and software development technique in which a preliminary version of part or all of the hardware or software is developed to permit user feedback, determine feasibility, or investigate timing or other issues in support of the development process Different from a pilot or pilot project which evaluates a complete system in a live environment 	ISO/IEC 24765, Software and Systems Engineering Vocabulary
Public Domain	Refers to works not under copyright — either because they were never in copyright to begin with (for example, works authored by U.S. government employees, on government time and as part of their job, are automatically in the public domain), or because their copyright term has finally lapsed and they have "fallen into" the public domain. While the United States does, not all countries have a concept of Public Domain.	The Open Source Initiative http://opensource.org/faq
Public Domain Software	Software in which ownership has been relinquished to the public at large.	PC Magazine Encyclopedia, retrieved 06 Oct 2015, http://www.pcmag.com/encyclopedia/term/49933/public-domain-software
Quality of Service	<ul style="list-style-type: none"> The measurable end-to-end performance properties of a network service, which can be guaranteed in advance by a Service Level Agreement between a user and a service provider, so as to satisfy specific customer application requirements. <p>NOTE: These properties may include throughput (bandwidth), transit delay (latency), error rates, priority, security, packet loss, packet jitter, etc.</p>	CNSSI No. 4009 Committee on National Security Systems Glossary, https://www.cnss.gov/
Reference Implementation	An implementation of a specification or set of specifications that can be deployed to demonstrate and/or utilize the covered capabilities. This implementation is considered to be reusable, potentially even in an operational environment, but known to be only one of many potential implementations. NOTE: Both Alpha and Bravo prototypes are considered to be prototypes and not reference implementations.	CNSSI No. 4009 Committee on National Security Systems Glossary, https://www.cnss.gov/
Research and Development (R&D)	Research and development of new technologies or capabilities.	

TERMS OF REFERENCE

Term	Definition	Source
Restricted Application Programming Interface (API)	An API that is made available to selected external developers based upon an agreement between the API owner and the external developer. This could be a signed license or acceptable use agreement or a contractual agreement.	I developed this term to cover the area between a fully Open API and a Closed API. Many web services, such as Netflix and Facebook, use a Restricted API.
Restricted Rights (Category of Data Rights)	Developed exclusively at private expense.	Defense Acquisition University's Acquipedia https://dap.dau.mil/acquipedia/Pages/ArticleDetails.aspx?aid=bc8736d5-0c9a-4296-8541-a2e9e120c725
Return on Investment (ROI)	The earning power of assets measured as the ratio of the net income (profit less depreciation) to the average capital employed (or equity capital) in a company or project.	BusinessDictionary.com http://www.businessdictionary.com/definition/return-on-investment-ROI.html
Rights	For Government Rights concerning software see DFARS Section 227.7203-5 (http://www.acq.osd.mil/dpap/dars/dfars/html/current/227_72.htm#227.7203-5)	DFARS http://www.acq.osd.mil/dpap/dars/dfars/html/current/227_72.htm
Security Requirement Guide (SRG)	Collections of requirements applicable to a given technology family, product category, or an organization in general in DoD. They provide non-product specific requirements to mitigate sources of security vulnerabilities consistently and commonly encountered across IT systems and applications.	
Security Technical Implantation Guide (STIG)	A methodology and set of guidelines for standardized secure installation, and maintenance of computer software and hardware.	
Service	The performance of activities, work, or duties associated with a product	ISO/IEC 12207 "Software Life Cycle Process"

TERMS OF REFERENCE

Term	Definition	Source
Service Level Agreement (SLA)	“A service level agreement is a contract between a service provider (either internal or external) and the end user that defines the level of service expected from the service provider [what service the provider provides]. [They] are output-based [to] specifically define what the customer will receive [though not] how the service itself is provided or delivered”	Palo Alto Networks, June 2015
Service Provider	An organization supplying services to one or more internal customers or external customers.	ITIL Glossary and Abbreviations, 2011
Shareware	<p>1) Shareware is software which comes with permission for people to redistribute copies, but says that anyone who continues to use a copy is required to pay a license fee.</p> <p>2) Marketing method for computer software - Shareware software is typically obtained free of charge, either by downloading from the Internet or on magazine cover-disks. A user tries out the program, and thus shareware is known as "try before you buy." A shareware program is accompanied by a request for payment, and the software's distribution license often requires such a payment.</p>	<p>1) The Gnu Project, http://www.gnu.org/philosophy/categories.en.html</p> <p>2) NRO Directive 50-10, Software License and Copyright Statute Compliance</p>
Shrink wrapped software	Store-bought software, which implies a standard platform that is widely supported.	PC Magazine Encyclopedia, retrieved 06 Oct 2015, http://www.pcmag.com/encyclopedia/term/51299/shrink-wrapped-software
Single-vendor Commercial Open Source	<p>“Open source software that is owned by a single legal entity with the purpose of deriving revenues from the software.”</p> <p>Typically the vendor owns the license to the Open Source Software and supports a free OSS version that is in some way feature limited. The vendor sells proprietary closed source features and enhancements. The purchase and use of the proprietary extension creates a vendor lock-in situation. Depending on the license used for the OSS version it may not be possible to create OSS versions of the proprietary features.</p> <p>NOTE: See also Dual Licensing</p>	Dirk Riehle “The Single-Vendor Commercial Open Source Business Model” http://dirkriehle.com/publications/2009-2/the-commercial-open-source-business-model/

TERMS OF REFERENCE

Term	Definition	Source
Small Business Innovative Research (SBIR) Data Rights (Category of Data Rights)	All technical data or computer software generated under a SBIR contract. Government users cannot release or disclose outside the Government except to Government support contractors.	Defense Acquisition University's Acquimedia https://dap.dau.mil/acquimedia/Pages/ArticleDetails.aspx?aid=bc8736d5-0c9a-4296-8541-a2e9e120c725
Software as a Service (SaaS)	The capability provided to the consumer is to use the provider's applications running on a cloud infrastructure. The applications are accessible from various client devices through either a thin client interface, such as a web browser (e.g., web-based email), or a program interface. The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, storage, or even individual application capabilities, with the possible exception of limited user-specific application configuration settings.	National Institute of Standards and Technology (NIST) Special Publication (SP) 800-145, "The NIST Definition of Cloud Computing", September 2011
Software Asset Management (SAM)	"Software Asset Management (SAM) is a best practice incorporating a set of proven processes and procedures for managing and optimizing your organization's IT assets. Implementing SAM protects your software investments and helps you recognize what you have, where it's running, and if your organization is using your assets efficiently."	Microsoft, https://www.microsoft.com/sam/
Software Assurance (Swa)	The level of confidence that software functions as intended and is free of vulnerabilities, either intentionally or unintentionally designed or inserted as part of the software throughout the lifecycle.	CNSSI No. 4009 Committee on National Security Systems Glossary, https://www.cnss.gov/
Software Framework	Frameworks model a specific domain or an important aspect thereof. They represent the domain as an abstract design, consisting of abstract classes (or interfaces). The abstract design is more than a set of classes, because it defines how instances of the classes are allowed to collaborate with each other at runtime. Effectively, it acts as a skeleton, or a scaffolding, that determines how framework objects relate to each other.	Dirk Riehle. Framework Design: A Role Modeling Approach. Ph.D. Thesis, No. 13509. Zürich, Switzerland, ETH Zürich, 2000. http://dirkriehle.com/computer-science/research/dissertation/index.html

TERMS OF REFERENCE

Term	Definition	Source
Software Integration Process	The purpose of the Software Integration Process is to combine the software units and software components, producing integrated software items, consistent with the software design, that demonstrate that the functional and non-functional software requirements are satisfied on an equivalent or complete operational platform.	Systems and Software Engineering - Software Life Cycle Processes. Geneva, Switzerland: International Organization for Standards (ISO)/Institute of Electrical & Electronics Engineers (IEEE) Computer Society, ISO/IEEE 12207:2008(E).
Software System Integration	Software system integration refers to the practice of combining individually tested software components into an integrated whole. Software is integrated when components are combined into subsystems or when subsystems are combined into products.	Software Engineering Institute's "A Framework for Software Product Line Practice, Version 5.0" http://www.sei.cmu.edu/productlines/frame_report/softwareSI.htm
Source Code	<p>1) computer instructions and data definitions expressed in a form suitable for input to an assembler compiler, or other translator</p> <p>2) Human-readable computer instructions and data definitions expressed in a form suitable for input to an assembler, compiler, or other translator.</p>	<p>1) ISO/IEC 24765, Software and Systems Engineering Vocabulary</p> <p>2) Defense Acquisition Portal, https://dap.dau.mil/glossary/pages/2669.aspx</p>
Source Code Escrow	An arrangement where a part of a contract the software vendor entrusts its source code to a third-party escrow agent who holds the source code in trust until a contractually defined release condition occurs (e.g. the vendor goes out of business). In the event of a release condition the escrow agent furnishes a copy of the source code to the customer.	A Guide to IT Contracting: Checklists, Tools, and Techniques, By Michael R. Overly, Matthew A. Karlyn, 2013
Specifically Negotiated License Rights (Category of Data Rights)	This right pertains whenever the standard license arrangements are modified to the mutual agreement of the contractor and the Government. In this case, the exact terms are spelled out in a specific license agreement unique to each application.	Defense Acquisition University's Acquipedia https://dap.dau.mil/acquipedia/Pages/ArticleDetails.aspx?aid=bc8736d5-0c9a-4296-8541-a2e9e120c725

TERMS OF REFERENCE

Term	Definition	Source
Standard	<p>A mandatory action or rule designed to support and conform to a policy.</p> <ul style="list-style-type: none"> • A standard should make a policy more meaningful and effective. • A standard must include one or more accepted specifications for hardware, software, or behavior. 	<p>Saint Louis University "Policies and Processes" http://www.slu.edu/its/policies-and-processes</p>
Strategic Trade Agreement (STA)	<p>A checklist to identify and verify the key eligibility and compliance requirements of trade license exceptions.</p>	
Support	<p>1) A widely used term in the industry to mean "to provide the capabilities for" or "to interface to" or "to include some function."</p> <p>2) When used as part of a RASCI responsibility matrix it refers to resources allocated to responsible party. Unlike consulted, who may provide input to the task, support helps complete the task.</p>	<p>1) PC Magazine Encyclopedia, retrieved 09 Oct 2015, http://www.pcmag.com/encyclopedia/term/52263/support</p> <p>2) A Guide to the Project Management Body of Knowledge (PMBOK Guide) (5th ed.). Project Management Institute. 2013</p>
Suspicious Activity Report (SAR)	<p>A document that financial institutions must file with the Financial Crimes Enforcement Network (FinCEN) following a suspected incident of money laundering or fraud.</p>	
System	<p>A collection of interacting components organized to accomplish a specific function or set of functions within a specific environment</p>	<p>IEEE 1362-1998 IEEE Guide for Information Technology-System Definition -Concept of Operation Document, 3.2</p>
System Integration	<p>System integration consists of taking delivery of the implemented system elements which compose the system-of-interest (Sol), assembling these implemented elements together, and performing the verification and validation actions (V&V actions) in the course of the assembly. The ultimate goal of system integration is to ensure that the individual system elements function properly as a whole and satisfy the design properties or characteristics of the system.</p>	<p>The International Council on System Engineering (INCOSE) Guide to System Engineering Body of Knowledge, Systems Engineering and Management http://sebokwiki.org/wiki/System_Integration</p>

TERMS OF REFERENCE

Term	Definition	Source
Systems Integration	<p>1) A broad topic that includes hardware, software, and human systems and which uses an interdisciplinary approach for a structured, disciplined, and documented technical effort to simultaneously design and develop systems products and processes used to create cohesive systems.</p> <p>2) Systems integration is the composition of a capability by assembling elements in a way that allows them to work together to achieve an intended purpose.</p>	<p>1) The International Council on System Engineering (INCOSE) Guide to System Engineering Body of Knowledge Glossary (http://sebokwiki.org/wiki/Systems_Integration_%28glossary%29)</p> <p>2) MITRE Systems Engineering Guide (http://www.mitre.org/sites/default/files/publications/se-guide-book-interactive.pdf)</p>
Telecommunications	Any transmission, emission, or reception of signs, signals, writings, images, and sounds or information of any nature by wire, radio, visual, or other electromagnetic systems.	Army Regulation AR 25-1 "Army Knowledge Management and Information Technology"
Threshold Requirement	A Threshold requirement specifies a minimum acceptable feature or function that still provides the needed capabilities if the corresponding objective requirement cannot reasonably be met (e.g., due to system maturity).	Nation Security Agency (NSA) Data at Rest Capability Package (https://www.nsa.gov/resources/everyone/csfc/capability-packages/assets/files/dar-cp.pdf)
Total Cost of Ownership (TCO)	<p>1) Total of direct capital investment in hardware and software plus indirect costs of installation, training, repairs, downtime, technical support, and upgrading. Also called cost of ownership or ownership cost.</p> <p>2) A comprehensive assessment of information technology (IT) or other costs across enterprise boundaries over time. For IT, TCO includes hardware and software acquisition, management and support, communications, end-user expenses and the opportunity cost of downtime, training and other productivity losses.</p>	<p>1) BusinessDictionary.com http://www.businessdictionary.com/definition/total-cost-of-ownership-TCO.html</p> <p>2) http://www.gartner.com/it-glossary/total-cost-of-ownership-tco</p>

TERMS OF REFERENCE

Term	Definition	Source
Total Lifecycle Cost (TLC)	Sum of all recurring and one-time (non-recurring) costs over the full life span or a specified period of a good, service, structure, or system. It includes purchase price, installation cost, operating costs, maintenance and upgrade costs, and remaining (residual or salvage) value at the end of ownership or its useful life.	http://www.businessdictionary.com/definition/life-cycle-cost.html
Unified Capability (UC)	The integration of various data services, over secure networks, regardless of infrastructure to warfighters and commercial businesses.	
Unified Capability Requirement (UCR)	These requirements specify the technical requirements for certification of approved products to be used in DoD networks.	
Unlimited Rights (Category of Data Rights)	Developed exclusively at Government expense, and certain types of data (e.g., Form, Fit, and Function data [FFF]; Operation, Maintenance, Installation, and Training [OMIT]). These rights involve the right to use, modify, reproduce, display, release, or disclose technical data in whole or in part, in any manner, and for any purpose whatsoever, and to have or authorize others to do so.	Defense Acquisition University's Acquipedia https://dap.dau.mil/acquipedia/Pages/ArticleDetails.aspx?aid=bc8736d5-0c9a-4296-8541-a2e9e120c725
Upstreaming	"Upstreaming is a term used to describe the process of contributing in-house source code modifications back to an open source project, with the goal of having them accepted and distributed in future project releases."	The Linux Foundation, http://www.linuxfoundation.org/publications/linux-foundation/upstreaming-strengthening-open-source-development
Validation	confirmation by examination and provision of objective evidence that the particular requirements for a specific intended use are fulfilled. (Validation demonstrates that the system can be used by the users for their specific tasks.)	ISO/IEC 12207:1995 Information technology -- Software life cycle processes, 3.35
Vendor Lock In	Being tied to the future products of a vendor due to the previous investment made in that vendor's proprietary hardware or software.	PC Magazine Encyclopedia, retrieved 09 Oct 2015, http://www.pcmag.com/encyclopedia/term/65580/vendor-lock-in
Vendor Neutral	A product or specification that is not proprietary and controlled by one vendor	PC Magazine Encyclopedia, http://www.pcmag.com/encyclopedia/term/53737/vendor-neutral

TERMS OF REFERENCE

Term	Definition	Source
Verification	confirmation by examination and provision of objective evidence that specified requirements have been fulfilled. (concerns the process of examining the result of a given activity to determine conformity with the stated requirement for that activity. A system may be verified to meet the stated requirements, yet be unsuitable for operation by the actual users.)	ISO/IEC 12207:1995 Information technology -- Software life cycle processes, 3.36
Wide Area Network (WAN)	A WAN is a data communications network that covers a relatively broad geographic area and that often uses transmission facilities provided by common carriers, such as telephone companies.	Cisco Internetworking Technology Handbook (http://docwiki.cisco.com/wiki/Internetworking_Technology_Handbook)

Commercial Software License Types

License	Definition	Source
Client Server License	Server license that is based on a device metric. In many cases this type of license may also have a Client Access License (or CAL) aspect. In a Server/CAL model a license must be purchased for the physical server (or virtual server - there are varying rules around virtualization) and also additional 'access' licenses must be purchased for any users/devices that may access the server for that application.	http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf
Concurrent License	License which provides wider access to the software but limits the number of simultaneous users using the software. It may or may not include compliance enforcement capabilities. Typically, a concurrent license is "checked out" from the license server when the software is run, assuming a license is available. If no license is available, the requestor experiences a denial of service.	http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf
Consumption (Usage-Based) License	License based on software/device usage (pay-for-use, pay-for-burst, pay-for-overflow) where fees are based upon actual usage (i.e. water or utilities for a home, cell phone) and revenue is recognized periodically as consumed and paid. This model is gaining momentum in cloud and SaaS-based applications. IDC predicts that usage-based software pricing models will be an option for 80% of applications by 2017.	http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf
Core/Processor Points License	License based on points applied as a multiplier to the number of cores/processors in the physical server, or in some cases, the virtual machine. Some producers count processor sockets and others count logical processors, or cores, but the license model is similar. For example, an application installed on a 4 processor server with 100 points per processor would require a purchase of 400 processor points to cover the license liability. These licenses are mainly used for data center software licensing.	http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf
Device-Based License	License for a defined number of software installations. The software may be uninstalled on one computer and installed on any other computer within the same enterprise, so long as the total number of installations does not exceed the number of purchased licenses.	http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf

TERMS OF REFERENCE

Enterprise License	License to install software an unlimited number of times within the enterprise. An Enterprise Agreement is structured as 'all you can eat' but the organization must be licensed for a specific quantity of licenses so this is not strictly an 'Enterprise License' model in its pure form.	http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf
Enterprise License Agreement (ELA)	<p>1) A software site license that is issued to a large company. It typically allows unlimited use of the program throughout the organization, although there may be restrictions and limitations. It always foregoes the need to register the software each time it is installed on another computer; however, there might be a master password that is required to activate each copy.</p> <p>2) The customer makes scheduled payments in exchange for a prescribed set of software, services and training over the term of the agreement. ELAs provide flexibility and permit deployment of unlimited quantities of selected products over the term of the agreement.</p>	<p>1) PC Magazine Encyclopedia, http://www.pcmag.com/encyclopedia/term/58508/enterprise-license</p> <p>2) Based on http://www.esri.com/industries/ela/how-ela-works</p>
Evaluation (aka trial)	License that allows one or more users to install and use software for trial purposes. Evaluation licenses may be time limited, may offer limited functionality, or may restrict or mark output (for example, some PDP writing software includes the name of the software on every PDP document produced from a trial version). After evaluation, a user may purchase a full license, uninstall the software, or (for time-limited trials) the software will simply no longer work.	http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf
Floating License	Each time a particular software product is run it checks-out a license key from a license server for the duration of operation. For example "Software A" will request a particular license key associated with "Software A" from a license server whenever it runs. If the license server has licenses available, the software is granted a license to run. The software will return the license to the server when the software is exited. Similarly, "Software B" will request a particular license key associated with "Software B" from the license server whenever it runs.	http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf
Metered Down, Served License	License is stored on a license server and the count is reduced every time a license request is made until there is no longer any quantity available.	http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf

TERMS OF REFERENCE

Named User License	License that allows access to the software by a specific number of named users. In some cases, these licenses can be transferred from one user to another. When you create the license, you should allocate the license to specific users. Only installations associated with allocated users are counted.	http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf
Node-locked License	License that allows access to the software on a specific number of named computers. These licenses are usually for server applications such as database products. In some cases, these licenses can be transferred from one computer to another, usually by requesting a new license key.	http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf
Original Equipment Manufacturer (OEM) License	License for software that is delivered with the hardware and is only for use on that piece of hardware. These licenses are tied to the lifecycle of the hardware and typically cannot be transferred to other hardware.	http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf
Perpetual License	<p>1) These licenses are when use rights are permanent once purchased. Upgrades are often included in the first year with maintenance payments required in future years to keep the software current</p> <p>2) License that allows indefinite use (from a time perspective) of the software. This is the most common license type, pay once and unlimited use, revenue hits P&L when the order is booked. Maintenance is usually priced as a separate item.</p> <p>More specific perpetual license types are listed below</p>	<p>1) http://www.gao.gov/assets/670/663560.pdf</p> <p>2) http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf</p>
<ul style="list-style-type: none"> • Perpetual, Counted, Node-locked 	This license is locked and stored on a device (node-locked), has no expiration date (perpetual) and has some maximum amount which must be checked against.	http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf

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<ul style="list-style-type: none"> • Perpetual, Counted, Served but Distributed 	<p>This license is initially stored on the license server and served but then distributed to each device. This is often used when the devices do not have connectivity to the internet for the activation process.</p>	<p>http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf</p>
<ul style="list-style-type: none"> • Perpetual, Counted, Served, Shared Concurrent Apps 	<p>This license is stored on a license server (served), and the count is shared across instances of the application on any number of devices as long as the quantity does not exceed the limit. Concurrency can be measured at different levels (e.g. applications, devices, user names).</p>	<p>http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf</p>
<ul style="list-style-type: none"> • Perpetual, Uncounted, Node-locked 	<p>The license is locked and stored on a device (node-locked, has no expiration date (perpetual) and simply indicates access to a function (uncounted).</p>	<p>http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf</p>
<p>Processor (per Processor/CPU) License</p>	<p>License based on the number of CPU/processor sockets on which the software will run, and NOT the logical processors aka cores.</p>	<p>http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf</p>
<p>Rental License</p>	<p>Similar to a subscription license in that the right to use is temporary. With these licenses, maintenance mayor may not be included. These are typically designed for peak usage needs such as a one-month license. This allows for the delivery of a license to meet a short-term need (ex. tax software during tax season) without discounting a subscription or perpetual license to meet the customer need.</p>	<p>http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf</p>
<p>Site-Based License</p>	<p>License to install software on an unlimited number of computers at one physical location.</p>	<p>http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf</p>

TERMS OF REFERENCE

Subscription License	<p>1) These licenses are used for a specific period of time, which can vary from days to years and may or may not include upgrade rights</p> <p>2) Fast growing, highly flexible, and where revenue is recognized based on a regular schedule (monthly, quarterly or annually) to reflect the delivery of value over time (e.g. the stream of maintenance updates). The subscription license is usually based on annual terms (i.e. one, two or three years) and includes the right to use the software and have access to support. If a subscription license is not renewed at the end of the term, then the customer loses the right to use the software and maintenance rights with no "ownership" of the product after the license expires.</p>	<p>1) http://www.gao.gov/assets/670/663560.pdf</p> <p>2) http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf</p>
Term License	Similar to a rental license with the option to "own" the product.	http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf
Termed, Uncounted Node-locked License	License is locked and stored on a device (node-locked, has an expiration date and simply indicates access to a function (uncounted).	http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf
Token-Based License	License based on a pre-defined object - the "token." The software producer creates a generic license key "token" instead of a license key associated with each product - the idea being that products don't check out product specific licenses, but rather, checkout one or more generic tokens - the amount of which is weighed toward the list price of the product. With this software licensing model, the customer downloads the software for a portfolio of software, and then purchases a number of tokens that enable the software. Tokens are typically implemented as a subscription license, which expires at the end of a term such as a year. This provides the software producer with some revenue upside as a result of offering this increased flexibility.	http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf

TERMS OF REFERENCE

User-Based License	License that provides access to the software to a specific number of users. All installations of the software will be counted but installations across multiple devices for the same user will be counted as one license consumption.	http://blogs.flexerasoftware.com/ecml2015/08/common-software-1license-terms.html#sthash.jMbOmLdA.dpuf
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Questions

Question: What are the differences between Open Source components and Open Source systems or solutions?

Response:

ISO defines a component as “an entity with discrete structure, such as an assembly or software module, within a system considered at a particular level of analysis”. There are many examples of components in OSS. The Java Struts framework and the OpenSSL libraries are just two examples of Open Source components. Open Source components are used in GOTS, COTS, and Open Source systems.

The IEEE defines a system as “a collection of interacting components organized to accomplish a specific function or set of functions within a specific environment”. Frequently the term application is used as a synonym for system. Some examples of OSS systems are LibreOffice (an Open Source office suite), the SonarQube platform for managing code quality, AlienVault OSSIM (Open Source Security Incident Management), and any of the available Linux distributions such as RedHat Enterprise Linux or OpenSUSE. Many closed source systems have Open Source equivalents available. Some closed source systems are built upon Open Source systems. One example of this is IBM WebSphere which is built upon the Apache Web Server.

Question: What is the difference between Intellectual Property (IP) rights and licenses?

Response:

According to the World Intellectual Property Organization, and under US law IP are “creations of the mind” which the owner is given legal protection under either patents or copyright. A license is legal permission for the use of a work that is copyrighted or patented.

Question: When reviewing a EULA for a software application, where can the user find definitions to understand the differences between the various agreements?

Response:

"In the Open Source Software (FOSS) Community the term ""free"" means freedom or liberty, not price. The term Libre Software has been adopted by some groups to make the distinction between free, as in liberty, and free, as in price. The OSS community has always held that it is acceptable to charge for software, just so long as liberties were not restricted. All OSS have licenses that are legally enforceable. <https://opensource.org/licenses>;

The DoD CIO Memo ""Clarifying Guidance Regarding Open Source Software (OSS)"" dated 16 Oct 2009 clearly states that OSS meets the definition of ""commercial computer software"". The practical impact is that OSS, regardless of the cost, must be treated the same as software purchased from any software vendor."

Question: What is the difference between an Open API vs Closed API?

Response:

"An Open API is available for any developer, internal or external to the software development team, to access functionality or resources available from an application or service. A Closed API, also known as Private or Proprietary APIs, are only available to developers who are internal to the development team."

Any application may have a mix of open and closed APIs, and may expose some APIs to one audience but not another. As an example a web service that provide aggregates news may have an Open API that allows anyone displays news headlines on their website. The same web service may have another Open, but restricted, API that displays the entire news story that is only available to paying customers. The same web service will have a Closed API that determines if the paying customer's account is paid. If the customer account is current the entire news story is displayed, if the account is not current then only the headline is displayed."

Acronyms Under Development

CBA
CME
SPO

Terms Under Development

Term	Definition	Source
Application Service Provider (ASP) Model		
Baseline Configuration		
Baseline Requirement		
Enterprise Service Bus		
Infrastructure Service Layer		
Infrastructure Service Provider (ISP)		
Infrastructure Service Provider (ISP) Model		
Pattern of Value (POV)		
Proof of Value (POV)		
Requirement		

Questions Under Development

Question: Is a proprietary interface the same as proprietary code?

Response:

Question: What are the issues with open vs closed code? What is the government's rights to interact with, or replace, a specific piece of functionality within the code?

Response:

Question: What are the issues and the concerns with "Proprietary" vs. "Closed" Interfaces vs. code?

Response:

Question: What is the difference between integration and development?

Response:

Question: What is the difference between a need and a requirement?

Response:

Question: When evaluating source code, how does the user separate the custom code (sometimes referred to as "glue code") that was used to assemble open source components into a baseline?

Response:

Acknowledgements

Special thanks to the members of the IAWG Terms of Reference Working Group who contributed to the development of this document:

Eric Amberge
Pam Arya
Ben Avicolti
Keith Barber, OG Systems
Nick Buck, Buck Consulting Group
John Farrell, Hewlett-Packard Enterprise
Matt Mattigan
Jim Metsala
Andy Murren, Silas Solutions Group