2022
Annual **INCOSE**
international workshop
HYBRID EVENT
Torrance, CA, USA
Jan 29 - Feb 1, 2022

Architecture

www.incose.org/IW2022

Architecture

CHAIRS

Richard Martin (richardm@tinwisle.com)
Jean-Luc Garnier (jean-luc.garnier@thalesgroup.com)
Anand Kumar (anand.ar@tcs.com)
Rolf Siegers (rolf_siegers@raytheon.com)

MEMBERS

15 regular members and over 230 corresponding members

INCOSE CONNECT ADDRESS

https://connect.incose.org/WorkingGroups/awg/Pages/Home.aspx

INCOSE WEB PAGE

http://www.incose.org/ChaptersGroups/WorkingGroups/process/architecture

Charter Summary

WG PURPOSE/MISSION

The purpose of the Architecture Working Group (ArchWG) is to expand the practice of architecture in Systems Engineering and advance the body of knowledge. Architecture is an integral part of the concepts and practice of Systems Engineering (and other disciplines) and must evolve with ongoing advancements whatever their origin. Therefore a standing working group facilitates and focuses ongoing advances in all extents and types of Enterprise and System Architecture and supports collaboration across INCOSE, across disciplines and with other international bodies that have a common interest in SE-based architecture.

WG GOAL(S)

The stakeholders of the ArchWG are practitioners and researchers in all kinds of Enterprise and System Architecture. The ArchWG seeks to accomplish standing goals and goals established each year at the INCOSE IW event.
Standing goals are defined as follows:

- Advance and evolve the architecture body of knowledge
- Promote the use and practice of architecture principles in systems engineering
- Share best practices for the use of architecture in enterprise and systems engineering projects
- Develop the practice of architecture within ArchWG members" home organizations
- Expand the effort in architecture related standards and specifications.

These goals are conducted in association with other bodies where appropriate. For example, over several years the ISO/IEC working group JTC1/SC7/WG42 has been a "customer" for ArchWG input. Collaborations with the IEEE and the OMG have been established.

Charter Summary

WG SCOPE

The ArchWG addresses the domain of Enterprise and System Architecture as it relates to Systems Engineering applied to all kinds of systems.

OUTCOMES (PRODUCTS/SERVICES)

The ArchWG aims to provide a variety of products and services, including:

- Support to events at chapter and sector level
- Conference and journal papers
- Publicly available discussion papers
- Guidance documents and tutorials
- Review and input to external publications (e.g. standards)

Current projects include:

- Review and comment for ISO/IEC/IEEE 42010 Ed2 Architecture description
- Update revisions for SE Handbook sections on architecture and design
- Preparation of a Guide to 42020
- Revision of FEAPO white paper - A Common Perspective on Enterprise Architecture

The detailed program of activities varies on an annual basis.

IW Outcomes

IW Outcomes

1.1 Guide to ISO/IEC/IEEE 42020 - Architecture Processes

1) This document provides guidance for the application of ISO/IEC/IEEE 42020:2019.
2) Presented overview of Working Draft 2 of the Guide
3) Released Working Draft 2 of the Guide on INCOSE Connect for review
4) Discussed the needs and expectations for the guide, difference it can bring in to the architecture community and the ISO standardization path

1.2 ISO/IEC/IEEE 42010 - Architecture Description

1) This standard on Architecture description is a revision of the existing ISO/IEC/IEEE 42010:2011 standard.
2) Presented an overview of the edition 2 of ISO/IEC/IEEE 42010 being finished and near to be published
3) Presented the broad challenges that was felt with the previous edition with regard to current practices and frameworks
4) Presented the changes made in the terminology, concepts and requirements to reflect the current state of art and make the standard more practical
5) Presented current status of the development of the edition 2 of ISO/IEC/IEEE 42010(FDIS)

1.3 How to consider Architecting and MBSE related standards for improvement of Digital Transformation: ATLAS

1) ATLAS is a large programme put in place for Digital Transformation of 16+ the French Industry Sectors.
2) Presented overview and current status of ATLAS and how ATLAS can disrupt the architecture and systems engineering practices
3) The presentation elaborated the standards, business cases and Implementation forums addressing Digital Transformation.

1.4 Architecture Track of EMEA Workshop

IW Outcomes

2022
Annual INCOSE
international workshop
HYBRID EVENT
Torrance, CA, USA
Jan 29 - Feb 1, 2022

1) Presented overview of the discussions on architecture/architecting challenges
2) Presented overview of non-functional considerations in Architecture/Architecting
3) Presented the conclusion of the discussions held in the EMEA workshop

1.5   ISO/IEC 30141 - Internet of Things Reference Architecture

1) Presented overview of ISO/IEC 30141 - WD3 (Released in June and November 2021)
2) Discussed the various conceptual problems in the existing draft and the need to align it with ISO 420x0 series of standards
3) Discussed the needs to be consistent with standards like ISO/IEC 10746 (Reference Model of Open Distributed Processing), Telecoms related standards (in particular, IETF and UTI for protocols, TM Forum for network management),
4) Discussed the need to review the IoT vocabulary (ISO 20924.Ed3.WD:2021) for consistency with ISO/IEC 30141 and to significantly improve the definitions

1.6   Digital Twins

1) Reviewed the existing Digital Twins related concepts, with examples in Industry, and the status of the related emerging standard
2) Presented an integrated view of Digital Twins that links the existing digital twin trends
3) Discussed about the standardization activities (in ISO TC184 and JTC1) related to reference architectures, methodologies, approaches for architecting, engineering and operating Digital Twins
4) Discussed about the opportunities for INCOSE ArchWG to contribute to the body of knowledge improvement (Architecture principles, patterns and Reference Architecture)

1.7   Chapter Updates

1) INCOSE UK ArchWG, AFIS ArchWG and INCOSE India ArchWG presented updates on the ArchWG activities of the respective chapters

1.8   Contribution to SE Handbook Edition 5 *(in parallel to the Working Group sessions)*

IW Outcomes

2022
Annual INCOSE
international workshop
HYBRID EVENT
Torrance, CA, USA
Jan 29 - Feb 1, 2022

1) Reviewed comments and provided content for working draft 2 on Architecture Definition Process (2.3.5.4)
2) Reviewed comments and provided content for working draft 2 on Design Definition Process (2.3.5.5)
3) Reviewed comments and provided content for working draft 2 on Architecture Framework (3.2.5)
4) Reviewed comments and provided content for working draft 2 on Service Systems Engineering (4.3.9)
Proposed new content for working draft 2 on Design Thinking

PLANNED ACTIVITIES AFTER IW

1.1   Guide to ISO/IEC/IEEE 42020

Lead: Anand Kumar
1) Inviting ArchWG members to review Working draft 2 and send in their comments before March 15th 2022
2) Inviting ArchWG members to contribute to Working draft 3. A core team will be defined and meetings will be held twice a month.
3) Working towards release of Working draft 3 (expected by mid-June in order to be reviewed during IS 2022)
Note: aim is to publish the Guide as ISO Technical Report with a "fast track" process by 2023.

1.2   ISO/IEC 30141 and 20924 - Internet of Things Reference Architecture

Lead: Ken Crowder, with support of the INCOSE Standards Department: Richard Martin
1) Defining a core team and scheduling weekly meetings in February 2022 in order to frame the INCOSE contribution.
2) Inviting ArchWG members to review Working drafts and send in their comments before Feb 21st 2022
3) Inviting ArchWG members to contribute content to Working drafts and improve the overall quality of the documents.

1.3   ISO/IEC TR 29110-5-6-2 - Systems Engineering - Management and Engineering Guide

Lead: TBD
1) Inviting ArchWG members to review Functional and Physical Architecture Deployment Package

1.4   Architecture Webinars

IW Outcomes

Lead: Anand Kumar, James Martin, Jean-Luc Garnier, and Rolf Siegers
1)   Scheduling Monthly webinars (2nd Friday) on different Architecture topics by leading Architecture Experts

1.5   SE Handbook Edition 5

Lead: Anand Kumar and James Martin, with support of the SEHBv5 Editorial Team
1)   Updating Working draft 3 based on the review comments from SE Handbook editors (Next draft is expected by IS2022 and a release by IW2023)
Note: The draft is available on INCOSE Connect. Each SEHBv5 contributors can manage briefings and reviews in their Chapters.
2)   Scheduling briefings of ArchWG members, on demand.

PLANNED WORK PRODUCTS AFTER IW

1.1   Guide to ISO/IEC/IEEE 42020

1)   Delivery Schedule:

- Working Draft 1 released in IW 2021
- Working Draft 2 released in IW 2022
- Working Draft 3 by IS 2022
- Committee Draft 1 by IW 2023
- Final Publication by IS 2023