
ISO/IEC JTC 1 "Information technology"

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Revised SC 38 Business Plan 2020

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Description

This document is circulated for review and consideration at the November 2020 JTC 1 virtual Plenary.

BUSINESS PLAN FOR JTC 1/SC 38

Cloud Computing and Distributed Platforms

PERIOD COVERED: September 2019 – September 2020

1. Executive Summary

Holding its first meeting in May 2010, SC 38 was chartered at the November 2009 JTC 1 Plenary to work on Distributed Application Platforms and Services (DAPS) including Cloud Computing and the related facilitating technologies Web Services and Service Oriented Architecture (SOA). Upon completion of its work on Web Services and SOA, and publishing the foundational Cloud Computing standards:

[ISO/IEC 17788:2014 \(Ed. 1\)](#) Information technology -- Cloud computing -- Overview and vocabulary

[ISO/IEC 17789:2014 \(Ed. 1\)](#) Information technology -- Cloud computing -- Reference architecture

SC 38 recognized the increasing demands - especially by governments - for standards to support the specification and acquisition of Cloud Computing technologies and services. In response we re-focused our efforts on Cloud Computing. In 2014 JTC 1 approved a revised scope and changed the title of SC 38 to "Cloud Computing and Distributed Platforms (CCDP)". The system integration nature of work on Cloud Computing and Distributed Platforms is reflected in a further revision of SC 38's scope that JTC 1 approved in 2017.

New committee leadership came on board in 2019 and with them came a concerted effort to establish long-term strategies for the committee that take into account the needs in the marketplace, and to reflect the ongoing innovation and trends in the area of cloud computing and distributed platforms.

Since its inception, SC 38 has published 21 Standards (including the 2 listed above). SC 38 is currently developing 6 ISs and one TR. Two new projects may be approved in WG 3 in the Sep 2020 Plenary.

Participation in SC 38 continues to be robust, with involvement of 49 countries (28 P members and 21 O members).

See overview of SC 38 [here](#).

2. Chairman's Remarks

State of Cloud Computing and Distributed Platforms

Cloud Computing and Distributed Platforms represent the most significant developments in IT technology today with substantial impact on the way IT technologies and services are provided and consumed. Cloud Computing is also driving a significant discontinuity and disruption in the marketplace, resulting in risk for some and opportunity for others. SC 38 is addressing the demand pull from users, especially governments, for standards to assist them in specifying, acquiring and applying Cloud Computing and distributed platform technologies and services.

As we enter the 11th year of this subcommittee, we're looking further to the future to organize our efforts and prioritize what we work on to ensure it's a reflection of the state and direction of Cloud Computing. We're doing more planning and roadmap work to organize what we tackle and in what order we tackle it over the next 3-5 years. We're emphasizing the importance of seeing cloud computing in the larger context of what has historically been referred to as *distributed processing* or *distributed computing*. The principles of cloud computing that takes place in a centralized data centre, should be the same as cloud computing that takes place at the edge (near IoT devices). In other words, cloud computing and edge computing are both considered in the same continuum.

Shifting Focus

Additionally, we're shifting our focus to include more perspectives from the Cloud Service Customer (CSC) angle than the Cloud Service Provider (CSP) and Cloud Service Partner (CSN) angles. We're also looking to expand our projects dealing with guidance on how to use our previously published standards. This will help other committees

who deal with cloud computing to more easily integrate our standards into their work programs.

Working Closely with Key JTC 1 SCs and WGs

We're continuing our efforts as a Systems Integration Entity to work more efficiently with the other committees that intersect more with ours. We continue to use our Liaison Coordination Group (LCG) mechanism where NB-appointed experts to join the SC 38 liaison representative to respond on behalf of SC 38 to the target SC on issues that require SC 38 action in between our semi-annual plenary meetings. We currently have five LCGs:

- SC 27 – Information security, cybersecurity and privacy protection
- SC 41 – Internet of Things and related technology
- SC 42 – Artificial Intelligence
- *SC 7 — Software and systems engineering
- *JTC 1/WG 13 — Trustworthiness

In addition, in the September Plenary SC 38 added a liaison representative to SC 32/WG 6 in anticipation that its new work on data usage will need to harmonize with work already done in SC 38.

* = approved in Sep 2020 plenary.

Improve Connections to Key Audiences:

- **Governments** (regulations and procurement)
 - SC 38 is expanding how we work with governments going forward, starting with closer connections to the European Commission.
 - We invited representatives from the EU to speak at our Berlin plenary, but they weren't able to accept due to a conflict with a critical meeting in Brussels.
 - The next time we have a plenary in Europe, we will invite them again.
 - The European Commission has representatives in SC 38.
 - SC 38 experts participate in the various EC activities (2020 Rolling Plan, SWIPO, etc).
- **Customers**
 - As indicated above, we're shifting focus to include the CSC perspectives, aligned with this we plan to do more outreach to customers. We are open to additional liaison relationships with cloud customer organizations (e.g. OMG Cloud Working Group, COPOLCO, etc).
- **Developers**
 - Cloud computing has shifted how software development, testing and deployment are done. All these functions are a part of what is known as "DevOps" (development and operations). In the Cloud Computing Reference Architecture (ISO/IEC 17789), "developer" is a sub-role of the Cloud Service Partner (CSN) role. SC 38 has identified this area as an area that needs focus.
 - This could be approached in collaboration with ISO/ IEC JTC1 SC7 WG29 (Agile DevOps), a new SC7 working group that was formed in July 2020. Other standards development groups may also be interested, such as IEEE where a new DevOps standard 2675 is currently under review/ballot.
 - Topics for consideration include:
 - Roles of CSN-Developers and associated activities as they develop, test, deploy and support cloud services
 - DevOps and DevSecOps cloud enabled landscape
 - Cloud native development and support
 - Cloud native development and support in multi-cloud
 - Cloud native development security considerations

- The focus will be to help the developer community understand how to use the ISO/IEC cloud and software standards to provide and support cloud solutions that meet customer expectations.
- **JTC 1 subgroups & ISO and IEC TCs**
 - As other JTC 1 subgroups, or ISO TCs or IEC TCs intersect with cloud computing, we'll expand our efforts to become aware of them and work with them more closely.
 - The SC 38 chair participated in the ISO TMB's Smart Manufacturing Coordination Committee (SMCC) coordinating with TCs from ISO, IEC and JTC 1 around the area of smart manufacturing.
 - SC 38 chair participated in a Webinar put on by JTC 1/SC 7, where representatives from key JTC 1 SCs were invited to explore synergies with SC 7.

Long-Term Strategy

Last year we established AG 5 – Long Term Standards Roadmap at our Sep 2019 plenary in Stockholm. This group has done good work in assessing trends and opportunities in the marketplace, and has given some good direction for SC 38 for the next 3-5 years. Because some of these long term directions and strategies will impact the committee greatly, and because the marketplace is ever shifting we intend to re-establish AG 5 each year, so that we can focus our efforts on what is most needed in the marketplace. AG 5 will also act as a forum SC 38 participants can discuss and socialize new project proposals for our program of work, and to prioritize them so we're focusing on what is most relevant to the marketplace.

Here are some of AG 5's findings for our long-term direction.

- **Help Accountability, Attestation and Certification Ecosystem**
 - JTC 1 standards help enable technical-policy discussions and helps define the criteria by which industry stakeholders will be held accountable.
 - Risk-based "Management Systems Standards (MSS) such as ISO/IEC 27001/27002 (information security) and ISO/IEC 27701 (privacy add-on) contain "controls" that often require suggested, associated guidance, which often require and reference other standards. SC 38's foundational standards are thus brought in and considered critical.
 - Although at this time SC 38 itself does not have any MSS projects underway, we work with SC 27 and SC 42 and the MSS projects they develop to ensure critical SC 38 standards are referenced.
 - Through use of the Liaison Coordination Group mechanism, SC 38 works very closely with SC 27 and SC 42, especially around their MSS projects.
- **Open Source**
 - Upon being approved as a JTC 1 PAS Submitter, the Joint Development Foundation (JDF) (a part of the Linux Foundation), SC 38 is reaching out to their leadership to explore possibilities. COVID-19 impacted these efforts. Although, SC 38 has not engaged directly with Open Source, much of the innovation occurring in cloud computing is taking place in many OSS projects (e.g. Docker, Kubernetes, etc).
 - In cases where the open source projects involve interface specifications, we are open to liaison relationships with these projects and will work closely with JTC 1 as it continues its efforts around open source.
- **Cloud Computing as Essential/Critical Infrastructure**
 - With millions of workers confined to their homes due to COVID-19, cloud computing has allowed critical industries such as online financial services, tele-health and much of the work at power and water filtration plants to continue despite lockdown restrictions. Further, cloud-based web conferencing (for example Zoom, WebEx, Teams, etc.,) and other remote access tools have allowed most other businesses to continue operations and to replace air travel.
 - In a very real way, our global economy and daily lives now depend on these online services and

the COVID-19 pandemic has merely highlighted their essential role.

- o This new awareness of the criticality of cloud computing has increased the number of inquiries, regulatory obligations,
- o We need to investigate the meaning, implication and potential impact of a “Critical Infrastructure” (CI) designation, if any, to cloud and distributed computing?

- **Digital Sovereignty**

- o The new European (EU) Commission that started December 1st, 2019 has “Digital Sovereignty” as a one of their main priorities. This is triggered by the global geopolitical shift given multilateralism is in decline and regions and countries feel they are increasingly on their own.
- o This trend has multiple dimensions, for example:
 - (1) Platform sovereignty (platform has various definitions; see elsewhere in this document)
 - (2) Data sovereignty and Data Federation
- o The free flow of non-personal data regulation and its article 6 concerning cloud switching and portability is an example of such work in Europe. SC 38 should continue to focus on data portability beyond ISO/IEC 19941 to help define the landscape and come up with consensus elements needed for understanding the ramifications of data sovereignty.
- o It is expected that digital sovereignty demands will be further amplified as the result of the COVID-19 pandemic. Sovereign clouds will be in more demand as a result, given countries would want to close borders and become more independent. Some of the aspects of platform sovereignty amplified by the pandemic are:
 - Data sovereignty and data localization, control, and sharing requirements
 - Data portability and service switchability requirements
 - Cloud SLAs could be affected due to the new sovereignty demands

- **Evolving Nature of Modern Digital “Platforms”**

- o Regulators and customers focus on the potentially undue power of distributed digital platforms, including cloud computing. There is a need for precision concepts and terminology that evolves with the times. The following are a few types of digital platforms that customers and regulators have in mind:
 - Ecommerce and consumer platforms such as social, gaming, ecommerce and intermediary platforms
 - Computing infrastructure: cloud computing infrastructure (PaaS/IaaS), client execution platforms (Windows/macOS/iOS/Android)
 - Internet itself
- o The rise of trade tensions globally and the decline of multilateralism has contributed to the intensity of such global dialogues.
- o SC 38, as the system integration entity for cloud and distributed computing across JTC 1, is in position to develop one or more projects that provide crisp definitions and descriptions of various digital platforms, as a set of foundational concepts that can be referenced by vendors, customers, policy makers, regulators and other stakeholders as they venture into developing new laws and regulations. Systems of soft laws can also benefit from such added precision in terms and concepts used.

- **COVID-19 Pandemic on Cloud and Distributed Computing Platforms**

- o COVID-19 has impacted cloud by accelerating the previously existing regulatory and political trends that had already been in motion as a result of society’s increased adoption of and reliance on cloud services. Here are a few top-level COVID-19 trends and the associated policy implications that SC 38 should keep an eye on:

- Accelerated drive toward digitization across governments and society is driving continued discussions on data localization and sovereignty.
- Increased reliance on home networks and work from home arrangements has increased the need for resilient cloud infrastructure with adequate bandwidth, security, and quality.
- Accelerated application of AI and data analytics for public health has increased the focus on AI governance (fairness, explainability, privacy, and security).
- Growth of e-learning, telemedicine, e-commerce, and e-government has increased demand for cloud services, with increased regulatory attention to cloud services likely to be a trailing indicator that continues to grow over time.

1. Market Requirements, Innovation

Recognizing the potential of this new technology/business paradigm, consumers of IT technologies and services - especially governments - are demanding standards to assist in their transition to Cloud Computing. Responding to these demands, in 2014 JTC 1 approved SC 38's change in scope and title: To support the application of Cloud Computing and Distributed Platforms standards across JTC 1, IEC, ISO and other standards development organizations, a further revision of SC 38's scope was approved by JTC 1 in 2017.

Title: Cloud Computing and Distributed Platforms (CCDP)

Scope: Standardization in the areas of Cloud Computing and Distributed Platforms including:

- Foundational concepts and technologies,
- Operational issues, and
- Interactions among Cloud Computing systems and with other distributed systems

SC 38 serves as the focus, proponent, and systems integration entity on Cloud Computing, Distributed Platforms, and the application of these technologies. SC 38 provides guidance to JTC 1, IEC, ISO and other entities developing standards in these areas.

2. Structure of SC 38

SC 38 carries out its Programme of Work utilizing the following Working Groups:

- WG 3 Cloud Computing Fundamentals (CCF)
- WG 5 Data and their Flow across Devices and Cloud Services (CCDF)

NOTE: Historically, WG 1 – Web Services, WG 2 – SOA and WG 4 – Interoperability & Portability completed their activities and were not re-instated.

In addition to the two Working Groups, SC 38 activated three Advisory Groups in our Sept 2019 plenary:

- AG 3 Multi-cloud (*now closed)
- AG 4 Cloud service connectivity (*now closed)
- AG 5 Long-term standards roadmap (**now Long-term Strategy)

*AG 3 & AG 4 completed their work at the Sept 2020 plenary and were not reinstated.

**At the September Plenary AG 5 was renamed to *Long-term strategy* and given a longer term (2 years). It will also now provide a forum for discussion, prioritization and socialization of long-term strategies and new standards projects prior to their submission for consideration by SC 38.

3. Accomplishments

Since the 2019 Business Plan, these SC 38 documents (6=1 IS, 1 TS, 4 TRs) were **published**:

ISO/IEC 22624:2020	Information technology – Cloud computing – Taxonomy based data handling for cloud services [2020.02.06] (WG 5)
ISO/IEC TR 23188:2020	Information technology -- Cloud computing -- Edge computing landscape [2020.02.10] (WG 3)
ISO/IEC TS 23167:2020	Information Technology -- Cloud Computing -- Common Technologies and Techniques [2020.02.10] (WG 3)
ISO/IEC TR 23613:2020	Information technology -- Cloud service metering and billing elements [2020.05.10] (WG 3)
ISO/IEC TR 23187:2020	Information technology -- Cloud computing -- Interacting with cloud service partners (CSNs) [2020.06.02] (WG 3)
ISO/IEC TR 23951:2020	Information technology – Cloud computing – Guidance for using the cloud SLA metric model [2020.06.25] (WG 3)

SC 38 also **progressed** the following documents to ballot (6):

ISO/IEC FDIS 19944.1	Cloud computing and distributed platforms – Cloud service and devices: data flow, data categories and data use – Part 1: Fundamentals (<i>project split & changed from Amendment to Revision</i>) [2020.07.20] (WG 5)
ISO/IEC WD 19944.2	Cloud computing and distributed platforms – Cloud service and devices: data flow, data categories and data use – Part 2: Guidance on application and extensibility [2020.08.15] (WG 5)
ISO/IEC CD 22123-1	Information technology -- Cloud computing -- Concepts and Terminology – Part 1: Terminology [2020.06.02] (WG 3)
ISO/IEC CD 22123-2.2	Information technology -- Cloud computing -- Concepts and Terminology – Part 2: Concepts [2020.08.13] (WG 3)
ISO/IEC CD 23751	Information technology — Cloud computing and distributed platforms — Data sharing agreement (DSA) framework [2020.03.25] (WG 5)
ISO/IEC WD TR 3445	Information technology – Cloud computing – Audit of cloud services [2020.05.21] (WG 3)

And **initiated** work on the following projects (2):

ISO/IEC WD 5140	Information technology — Cloud computing — Concepts for multi-cloud and other interoperation of multiple cloud services [2020.05.21] (WG 3)
ISO/IEC NP TS 5928	Information technology — Cloud computing and distributed platforms — Modern Platforms Taxonomy

4. Resources

SC 38 meets in Plenary, usually along with its Working Groups, twice each year. In addition, to the Plenary and Working Group meetings, SC 38 had established a preference to resolve ballot comments, when required, in separately convened (but usually co-located with the twice yearly gatherings) Comment Resolution Meetings with National Body representatives. This is no longer allowed according to ISO, therefore we converted to holding comment disposition meetings to being executed in the owning WG, in expert-mode. Although this caused some concern among the participants, we're adjusting our approach to comply with the new procedures.

SC 38 Working Groups convene periodic electronic meetings to advance work between face-to-face meetings. SC 38 Plenary and Working Group meetings continue to be well attended. There is good participation in SC 38's Programme of Work by National Bodies and Liaison Organizations. SC 38 currently has 28 "P" members and 21 "O" Members. See list of SC 38 National Bodies [here](#).

5. Competition and Cooperation

Cloud Computing is a hot area in IT, that continues to benefit from strong innovations in the marketplace. Many standards setting organization as well as open source initiatives are working in the area. SC 38 is not seeking to replicate work being done elsewhere. Rather, SC 38 prefers to serve in a systems integrator role, referencing best of breed standards and cooperating with forums having specialized expertise to augment the core Cloud Computing standardization projects carried out within SC 38. Toward this objective, SC 38 has reached out to JTC 1/SC 27 (IT Security Techniques) to develop Part 4 of the Service Level Agreement standard (19086-4) and to JTC 1/SC 41 (Internet of Things and related technologies) to develop the Edge Computing standard (TR 23188). SC 38 also expects more interactions with JTC 1/SC 32, JTC 1/SC 40, JTC 1/SC 41 and JTC 1/SC 42 during development of a future project on Data Sharing Agreement. Furthermore, SC 38 has 11 Liaison Organizations within ISO/IEC and 8 Category A Liaisons, and 4 Category C Liaison, with many taking active roles in the work of SC 38; see list [here](#).

3. Working Groups

SC 38 develops standards in the area of Cloud Computing and Distributed Platforms ([SC Program of Work](#))

1. WG 3 on Cloud Computing Fundamentals (CCF)

Terms of Reference

1. Projects related to Cloud Computing Service Agreements
2. Projects related to fundamental concepts, terminology and definitions for Cloud Computing
3. Projects related to guidance on use of international standards in the development of policies that govern or regulate cloud service providers and cloud services, and policies that govern the use of cloud services in enterprise organizations
4. Establish liaisons and collaborate with other entities within JTC 1, SDOs and consortia performing work related to Cloud Computing

1. WG 3 Accomplishments

WG 3 published the following International Standards and Technical Reports (5):

ISO/IEC TR 23188:2020	Information technology -- Cloud computing -- Edge computing landscape [2020.02.10]
ISO/IEC TS 23167:2020	Information Technology -- Cloud Computing -- Common Technologies and Techniques [2020.02.10]
ISO/IEC TR 23613:2020	Information technology -- Cloud service metering and billing elements [2020.05.10]
ISO/IEC TR 23187:2020	Information technology -- Cloud computing -- Interacting with cloud service

	partners (CSNs) [2020.06.02]
ISO/IEC TR 23951:2020	Information technology – Cloud computing – Guidance for using the cloud SLA metric model [2020.06.25]

WG 3 progressed the following projects (3):

ISO/IEC CD 22123-1	Information technology -- Cloud computing -- Concepts and Terminology – Part 1: Terminology [2020.06.02]
ISO/IEC CD 22123-2.2	Information technology -- Cloud computing -- Concepts and Terminology – Part 2: Concepts [2020.08.13]
ISO/IEC WD TR 3445	Information technology – Cloud computing – Audit of cloud services [2020.05.21]

WG 3 initiated the following projects (2):

ISO/IEC WD 5140	Information technology — Cloud computing — Concepts for multi-cloud and other interoperation of multiple cloud services [2020.05.21]
* ISO/IEC NP TS 5928	Information technology — Cloud computing — Modern Platform Taxonomy

* - NOTE: these are proposed projects that will be balloted according to the outcome of the Sep 2020 plenary.

2. WG 3 Deliverables (this year and future)

- 2020 Deliverables
 - Progress ISO/IEC 22123-1 from DIS (under ballot)
 - Progress ISO/IEC 22123-2 from 2CD (under ballot)
- Future Deliverables
 - Progress ISO/IEC TR 3445 to publication
 - Progress ISO/IEC NP 5140 to WD

3. WG 3 Risks, Opportunities and Issues

With the change of its Terms of Reference in April 2017 to include cloud computing fundamentals such as the fundamental concepts/terminology/definitions for cloud computing and the guidance for usage of International Standards in the development of policies, WG 3 has more opportunities to address market needs on a timely basis.

WG 3 worked closely with SC 41 on Edge Computing; the objective was to agree on a common core and to ensure the consistency and complementary nature of the Edge Computing work products from both groups.

WG 3 needs to continue to focus on future projects that address market requirements, including the evolution of previous products as well as the initiation of new areas of work.

2. WG 5 on Data and their Flow across Devices and Cloud Services

Terms of Reference

Progress project ISO/IEC 19944, which has the scope of:

- Establish common and functional ways of understanding and describing the breadth of the cloud service

ecosystem.

- Describe the impact of portable customer devices (e.g. phones, tablets, laptops) on the cloud service ecosystem as well as other devices participating in this cloud computing ecosystem.
- Build on top of the existing cloud vocabulary and reference architecture in ISO/IEC 17788 and ISO/IEC 17789 to include the concept of personal clouds, covering the modern devices and services ecosystem.
- Enumerate and define the types of connections that can exist between cloud services and customers where their devices are mobile.
- Provide foundational concepts necessary to enable others to provide guidance concerning data locality, mobile ecosystem issues, and identity issues.
- Identify the types of data that flow across the customers and cloud services ecosystem and that can help cloud customers' better understand and consequently protect the privacy and confidentiality of their data.
- Establish liaisons and collaborate with other entities within JTC 1, external SDOs, Fora and Consortia performing associated work, as appropriate.

1. WG 5 Accomplishments

WG 5 published the following International Standards and Technical Reports (1):

ISO/IEC 22624:2020	Information technology – Cloud computing – Taxonomy based data handling for cloud services [2020.02.06]
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WG 5 progressed the following project (3):

ISO/IEC FDIS 19944.1	Cloud computing and distributed platforms – Cloud service and devices: data flow, data categories and data use – Part 1: Fundamentals (<i>project split & changed from Amendment to Revision</i>) [2020.07.20]
ISO/IEC WD 19944.2	Cloud computing and distributed platforms – Cloud service and devices: data flow, data categories and data use – Part 2: Guidance on application and extensibility [2020.08.15]
ISO/IEC CD 23751	Information technology — Cloud computing and distributed platforms — Data sharing agreement (DSA) framework [2020.03.25]

WG 5 initiated the following projects (0):

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2. WG 5 Deliverables (this year and future)

- **2020 Deliverables**
 - o Progress ISO/IEC 19944.1 to DIS
 - o Progress ISO/IEC WD 19944.2 to CD
- **Future Deliverables**
 - o Progress ISO/IEC WD 23751 to CD

WG 5 has an opportunity to continue addressing market needs on a timely basis. WG 5 will continue its work on all cloud data related issues leveraging the expertise of its members in future projects.

WG 5 had representatives from SC 38 participating in JTC 1/AG 09 – Data Usage to promote ISO/IEC 23751 (Data

Sharing Agreement Framework) across a larger section of JTC 1. Now that JTC 1 has assigned the two new NPs from AG 9 to a new WG in SC 32, WG 5 will work closely with them. The work of WG 5 will support any broader efforts that occur around data within JTC 1, keeping an eye on the distributed computing aspects.

WG 5 needs to continue to focus on future projects that address market requirements, including the evolution of previous products as well as the initiation of new areas of work.