# Japan – EU Cloud Computing Technical Seminar 19 April 2012

## **Meeting Report**

The information contained within this document is a summary of events and may not be held to represent the views or opinions of the European Commission, the Government of Japan, or any of their services or agencies, or of guest speakers.

### The Seminar

The EU-Japan ICT Dialogue, which is a forum for discussion between EU and Japanese government officials and experts on international information and communications technology (ICT) policy issues, agreed in its June 2011 meeting to organise a Japan-EU Cloud Computing Technical Seminar. The Seminar was held on 19 April 2012 and was hosted by the Japanese Ministry of Internal Affairs & Communications (MIC) in Tokyo. It took the form of a hearing of experts from both EU and Japan. Participants included EU and Japanese government officials, panel speakers from the private sector, academia, and representatives of standardization organizations.

Cloud Computing is growing rapidly and is a strategic ICT priority for both the EU and Japan. As such, the Japan-EU Cloud Computing Technical Seminar was very timely, providing a valuable opportunity for an exchange of views and information between high-level representatives and experts on both sides in relation to the development and take-up of cloud services.

Cloud computing represents a new paradigm which brings benefits to users and industry alike. Customers benefit from more efficient utilisation of IT resources, scalable investment and reduced risk, while barriers to entry for new companies are lowered dramatically. It offers a new platform for enterprises, especially SMEs, that will help drive economic growth. For Cloud Service Providers (CSPs) too the business case is compelling, allowing large network players to leverage economies of scale and scope. But Cloud Computing also brings new challenges in areas such as interoperability, reliability, security and privacy. And it challenges our concepts of regulation. All of this means Cloud Computing is an area where policymakers should work together to develop the strategies and frameworks needed in the future.

The Japanese and EU delegations were led respectively by Mr. Toru Nakaya, Director, International Policy Division, MIC, and Dr. Barbara Rhode, Minister-Counsellor/Head of Science and Technology, Delegation of the European Union to Japan. Speakers are listed in the annex.

### **Cloud Computing Strategy & Policy**

The Seminar provided an opportunity for exchange of information on cloud computing policy developments in Japan and the EU.

Japan's Smart Cloud Strategy, launched in May 2010, aims to maximize use of cloud services to promote the widespread use of ICT as part of a knowledge and information society, creating new economic growth and bolstering Japan's international competitiveness. The Great East Japan Earthquake of 2011 emphasized the benefits of cloud services and has had a profound impact on the direction of policy. The deployment of clouds to improve the resilience of mission-critical social infrastructure is now a key driver for policy development in Japan going forward.

In Europe, the policy context is driven by the Digital Agenda, part of the European Commission's *Europe 2020* strategy for jobs and growth. The forthcoming European Cloud Strategy will set out measures to make Europe both cloud-friendly and cloud-active. The European Cloud Strategy foresees three pillars for action: updating the legal framework through coherent and integrated policies; turning the public sector into a 'lead market' for cloud computing services; and seeking global solutions based on agreed principles in areas such as data protection, interoperability, and security.

There is a recognisable mapping between policies which provides a good basis for future dialogue. Although adopting slightly different emphases, the cloud policies of the EU and Japan follow similar

tracks. Each gives attention to: use/application and user requirements, including privacy; technology R&D and standardization; and international/global dialogue and collaboration efforts. Thus, there is a recognisable mapping between policies which provides a realistic basis for EU-Japan dialogue in this domain going forward. In addition, both parties have bilateral dialogues with the United States on cloud computing issues.

### **Deployment of Cloud Services**

The Seminar addressed a wide range of issues relating to the deployment of cloud services and future take-up.

**Public clouds still face major barriers to wider adoption.** While cloud services are being increasingly adopted by enterprises in both Japan and the EU, barriers to take-up remain. Important issues include: data protection; transborder data flows; litigation and regulation; standards and interoperability; portability and reversibility; Service Level Agreements (SLA) & performance; licensing; and pricing and rating. Data/confidentiality loss and vendor lock-in are key concerns.

To overcome these barriers much better account needs to be taken of users' expectations. This calls for a balanced approach based on a combination of directives, regulations, frameworks, labels and models. Stakeholder involvement and cooperation will be needed at all levels: suppliers and users, European and national authorities, industry and standards bodies, and also internationally.

Machine-to-machine (M2M) clouds offer huge potential for new services. M2M enables data to be collected from an array of devices – such as smartphones, smart meters, sensors, and home appliances – and then analysed and processed in various ways for applications in sectors such as the power industry, manufacturing, medical & healthcare and government services.

Environmental issues are a key concern for cloud service providers and will increasingly shape how services are delivered. Measures being taken include reducing the number of servers through virtualization and consolidation, using more energy-efficient servers and power supplies, and the redesign of data center cooling systems.

The emphasis on clouds as social infrastructure calls for new approaches. As vital societal networks and services such as healthcare, education, energy, transport, environment, and urban management move into the cloud space, cloud services are becoming more and more a part of the social fabric. Many of these applications leverage 'Big Data' – the explosion of data generated by smart sensors, devices and objects. Viewing clouds as social infrastructure demands new approaches in terms of interoperability, reliability/resilience, security, and data protection.

Clouds offer a vehicle to strengthen emergency response and disaster recovery. The concept of clouds as a social fabric comes into its own in the extreme circumstances of a natural disaster and/or civil emergency. Cloud platforms can be used to deliver resilient infrastructure and services. The Japanese experience with the 2011 Earthquake provides important pointers and lessons on which to draw.

Regulation in the cloud space should encourage, rather than impede, collaboration and synergies. Regulation should promote interoperability, guard against vendor 'lock-in', and ensure a level playing field while recognising that value chains are changing. Data definitions (e.g. meanings of terms such as 'personal data' and 'consent'), trans-border data flows, and privacy (e.g. data minimisation, 'right to be forgotten', data portability, privacy by design) are all important issues.

Focus global policy efforts on accelerating harmonization of cloud regulatory frameworks. A clear and coherent regulatory framework will ensure the availability of cloud services that increase the competitiveness of the SME sector and thereby foster economic growth. A global alignment of regulations will reduce uncertainty and make compliance easier.

**Private consortia are key to successful deployment**, and there are opportunities for collaboration between European and Japanese stakeholders (such as the Japan Cloud Consortium and EuroCIO) to ensure the private sector voice is heard.

### Standardization and Interoperability

The Seminar discussed the technical, regulatory and other challenges surrounding standardization and interoperability in the cloud context.

Standardize in the right way and at the right time. Interoperability of cloud platforms allows market operators to maximise benefits for all and drives innovation. Standardization activities are underway within the EU, Japan and globally, however this must be done in the right way and at the right time. The market is still in its early stages and the window of opportunity for standardization is critical: acting too early can be prescriptive and may stifle innovation, whereas acting too late would mean 'missing the boat'. Efforts should focus on ensuring some interconnection of heterogeneous building blocks through testing, validation and interoperability testing. Discussion on topics and methodology should continue within standardization bodies.

A more differentiated approach to cloud interoperability should be pursued. There is scope to investigate the many different types of standards, definitions and approaches that might be applied in the cloud space (national, international, sectoral, etc), and to develop a more differentiated approach.

Inter-cloud service federation is a fertile area for standardization. Key issues include: 1) Inter-cloud interworking architecture and standard interfaces; 2) SLA assurance for totality of server, storage and network; and 3) Provisioning, monitoring and control across multiple clouds. Efforts should aim towards standardizing the interface between cloud systems administered by different operators, based on a multi-layer approach.

**Cooperation on common research agendas.** There are opportunities for Japanese and European researchers to collaborate in defining common priorities for research, innovation and standardization. Further opportunities for Joint EC-MIC funding should be discussed.

### Key topics in research and technology development include:

- Challenges and approaches for the Inter-cloud and virtualization
- Challenges of Big Data and research for machine-to-machine clouds
- Security, privacy and compliance
- Data management
- Agility and adaptability
- Programmability

### **Best Practices**

The Seminar heard case studies from the private sector in utilizing cloud services effectively. Examples were drawn from a variety of scenarios, from convenience stores, to agriculture and advanced engineering.

Clouds offer SMEs new platforms for collaboration. Cloud services are moving from the 'early adopter' phase into the mainstream, providing opportunities for businesses of all sizes to maximise value and create new markets. The benefits are particularly significant for SMEs, for whom cloud offers an important new platform for innovation and growth. Cloud technologies allow even the smallest enterprises to access collaboration opportunities, leverage cost advantages, and utilise best-in-class security and technology.

Clouds as platforms for business support services. As well as enabling collaboration between firms, clouds allow more effective and efficient cooperation between firms and other parts of the business service ecosystem: universities, research centres, government organisations, standards organisations, etc. These ecosystem aspects are little studied or understood at present and could provide the basis for new models.

Cross-border data transfer is a particularly challenging area for cloud computing users. A much clearer international framework for data protection is required that takes account of cloud-specific deployment methods and technology (e.g. security, supply chains), cross-border exchange processes, and roles within the cloud.

All of this points to guidance and best practice as a complement to regulations and standards. As well as formal regulations and standards, there is a need for guidance and best practice for industry, users and regulators. This aspect is highlighted in the European Cloud Strategy and in Japan is already being implemented by various stakeholders.

**Open data can be an important stimulus to innovation in the cloud space**, but requires an appropriate legal framework.

### **Next Steps**

It was agreed to continue with the exchange of views under the EU-Japan Cloud Computing Dialogue, which was seen as beneficial for both parties. The timing and agenda of further meetings will be decided at a future date.

Potential forums for future dialogue include:

- 1) At **policy level**, between the MIC and European Commission;
- 2) At research/technical level, within research forums (such as the GICTF, ASPIC, Future Internet PPP) and standardization bodies (ETSI, TTC);
- 3) At **industry/user level**, between bodies such as EuroCIO, JCC and the European Cloud partnership (ECP) (a public-private partnership proposed under the European Cloud Strategy).

### **Annex 1: Acronyms**

ASPIC ASP-SaaS-Cloud Consortium

ECP European Cloud Partnership

ETSI European Telecommunications Standards Institute

EuroCIO European CIO Association

GICTF Global Inter-Cloud Technology Forum

JCC Japan Cloud Consortium

MIC Ministry of Internal Affairs & Communications (Japan)

TTC Telecommunication Technology Committee

### **ANNEX 2: CHAIRMEN AND SPEAKERS**

#### **Seminar Chairs**

Mr Toru Nakaya, Director - International Policy Division, MIC

Dr Barbara Rhode, Minister-Counsellor/Head of Science and Technology, Delegation of the European Union to Japan

#### Session 1: Cloud Computing Strategy & Policy

Mr Yuji Nakamura, Director for Convergence Strategy, ICT Strategy Policy Division, MIC Ms Maria Tsakali, Information Society & Media Directorate-General, European Commission Ms Alison Birkett, Information Society & Media Directorate-General, European Commission

#### **Session 2: Deployment of Cloud Service**

Mr Hiroshi Honjo, Data Center Business Unit, NTT Data Corporation

Mr Eric Henault, Network Coordinator, EuroCIO

Mr Ro Odashima, Director of ASPIC

Mr Laurence Kubiak, Director of Global Regulation and Competition, BT Global Services

#### Session 3: Standardization and Interoperability

Prof. Tomonori Aoyama, Chair, Global Inter-Cloud Technology Forum (GICTF)

Ms Margot Dor, ETSI

Mr Takenori Mikasa, ASP-SaaS-Cloud Consortium (ASPIC)

Mr Christoph Rechsteiner, SAP

#### **Session 4: Best Practices**

Mr Hirotoshi Takase, Japan Cloud Consortium

Mr Andreas Gehrmann, Senior Information Security & Supply Chain System Auditor, TÜV Rheinland Japan

Mr Tomoaki Fukaya, Director Government Relations & Business Development Division, Fujitsu Ltd.; Chairman of JCC Agriculture WG

Mr Kuni Horita, General Manager LMS Japan, LMS international