

COMMIT/

The Service Provider Group Framework.

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Slivers, delivered by multiple autonomous service providers will need coordination in order to comply with a particular service level required by a particular slice owner. Slice archetype's, defined and supported by a group of Service Providers that have decided to collaborate, is one model that could be further investigated. In particular if a "Slice Archetype" defines a particular service level exceeding a common "best effort" slice, providers typically require authorized access to their slivers. In chapter 5 of his thesis, Gommans [1] described a framework, called the Service Provider Group (SPG), as a way to arrange trust between providers needed prior to allowing access to Service Provider assets.

The willingness of a Service Provider to collaborate within a group is dependent on the benefits each provider can achieve. Well known examples of a Service Provider Group is MasterCard, where competitive banks collaborate to provide payment card services to their customers (i.e. merchants and cardholders). Competitive airlines collaborate in alliances such as Skyteam to expand their networks of destinations that can be offered to their passengers and agree on a common standard to offer services such as allowing lounge access, priority lane access, etc.

Investigating how the Service Provider Group concept can be applied to a collaboration of service provider organizations, where:

- each provider can offer slivers that can become part of a slice stretching across multiple autonomous aggregate managers,
- such slivers have a common notion of service quality requirements,

is the key subject this research contribution.

During the Internet2 Global Summit 2015 in Washington, it was recognized that defining archetypes for slice that deliver for example a guaranteed level of privacy, ranges of scalability, guaranteed availability, disaster recovery capabilities, etc. is a way to organize service delivery in a more scalable way rather than having slice owners and aggregate service providers depend on bi-lateral agreements.

Research into the applicability of a SPG is performed at University of Amsterdam in the context of creating cyber security defence alliances in a joint NWO and COMMIT/ project called SARNET. Here, the Faculty of Law and Computer Science group collaborate to create agent-based models of the behavioural aspects of individual cyber security service providers where each domain interprets a common set of rules in an effort to identify risks and benefits. This effort can collaborate with an NSF effort to further substantiate findings by performing research in GENI context.

References:

[1] Leon Gommans, **"Multi-domain authorization for e-Infrastructure"**, PhD thesis, ISBN,9789491602269, <http://dare.uva.nl/record/1/432647>

Bio's

Ameneh Deljoo is performing her PhD research at University of Amsterdam where she considers the applicability of the Service Provider Group concept within the context of Cyber security and advanced networking. Amenah received her MSc degree in Information Technology from Shiraz University (Iran, 2012). She moved to The Netherlands in 2012 as a researcher at Delft University of Technology in the ICT department. Her research topic was modeling an organization as a complex adaptive system. Amenah applied an agent based model to model the behaviour of different organizations. Amenah was involved in different EU projects and also organizer of a workshop in Koblenz, Germany. Before starting her PhD she worked as a software developer for Dutch companies.

Dr. Leon Gommans received his PhD in informatics in 2014 from University of Amsterdam, where he considered multi-domain authorization systems for e-Infrastructures. From the start of his career in 1981, Leon has been involved in the development of the early commercial forms of computer networks at ADP Network Services. He subsequently worked for a number of computer & networking industries as engineer, technical manager. In 1996 he became member of the CTO office of Cabletron Systems Inc. where he was involved in network research and standard efforts in the IETF. In 2000 Leon was co-author of a series of RFC's (2903-2906) produced by the AAA Architecture Research Group, which became the foundation of his research that he continued at University of Amsterdam in 2001. After completing a master course in Architecture in the Digital world in 2008, became Sr. Infrastructure Architect within Air France KLM. His position recently evolved into his current position as Science Officer within the Group Strategy and Technology office of Air France – KLM Information Services, where he researches the role and value of future Internet capabilities for the business of the airline. He collaborates as guest researcher with the Systems and Networks Engineering group at University of Amsterdam.

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