

**ITU Workshop on “Cloud Computing Standards –
Today and the Future”**
(Geneva, Switzerland 14 November 2014)

**ITU-T Recommendation Y.3511
Inter-cloud Framework**

**Bo HU and Naotaka Morita,
NTT,
hu.bo@lab.ntt.co.jp**

ITU-T cloud related Recommendations

- Collaborative team (CT) between ITU-T SG13 WP2 & ISO/IEC JTC1 SC38 develops common texts of Y.3500 (cloud computing overview and vocabulary) and Y.3502 (reference architecture).
- Y.3501 includes cloud computing high level requirements of various cloud services and technologies relating to other documents
- Y.e2ecslm (Lifecycle management)and Y.e2ecmrgb (common model of resource management) are extended from Y.3520 (End-to-end management).

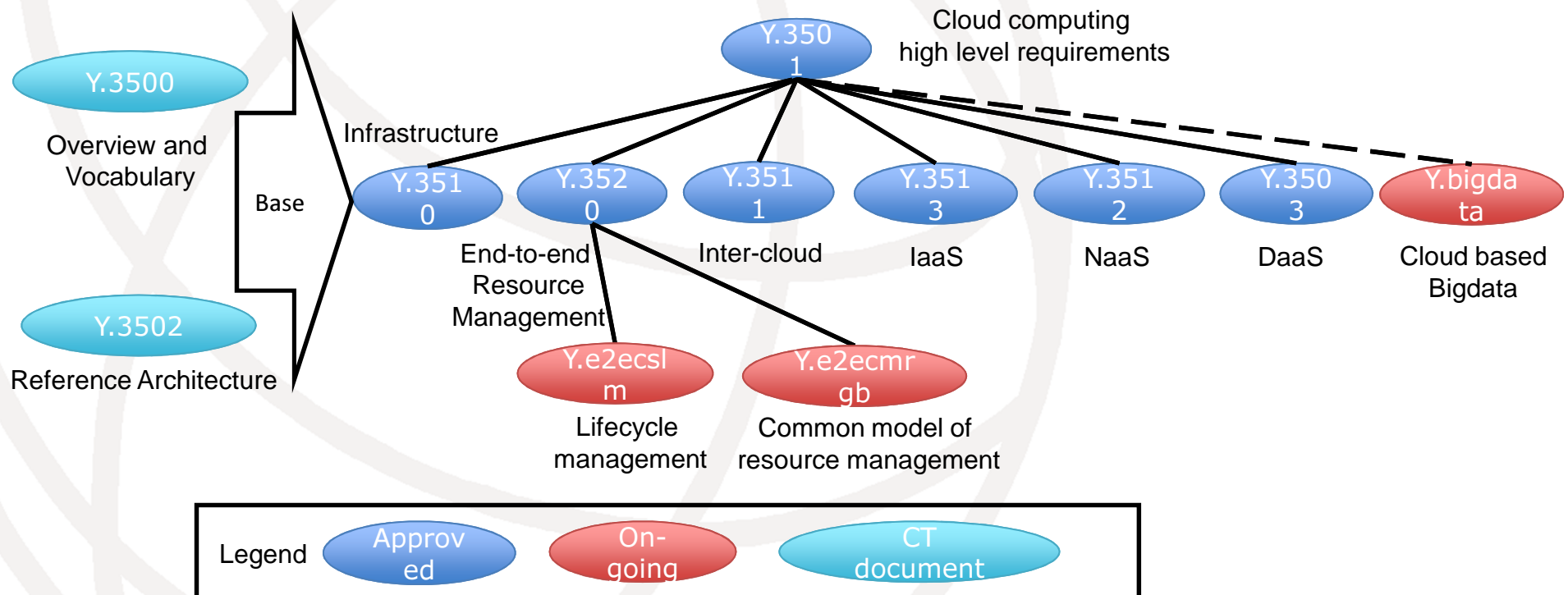


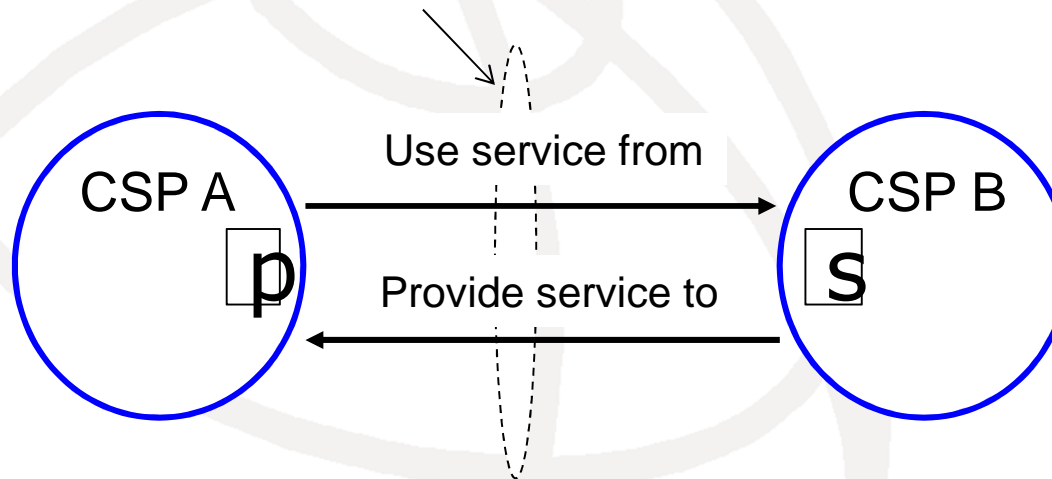
Table of Content of Y.3511

Main body	Scope
	Introduction
	Pattern
	Overview
	Functional requirements
	Security consideration
Appendix	Use cases I
	Use cases II
	Service offering model
	Security aspect

Introduction

➔ Basic concept for CSPs' collaboration (Use and Provide)

Inter-cloud relationship



p

primary CSP in the Inter-cloud relationship

s

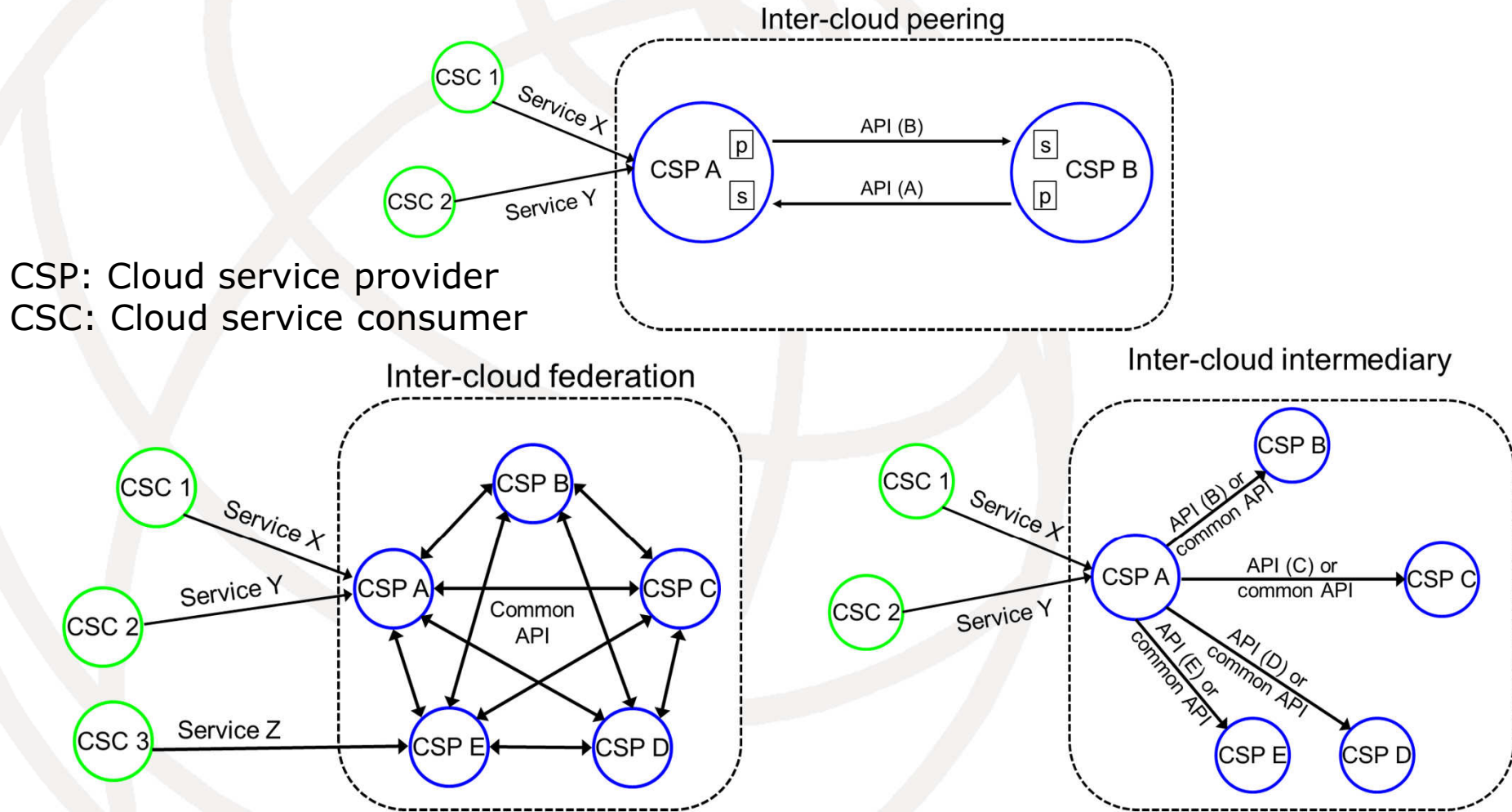
secondary CSP in the Inter-cloud relationship

CSP: Cloud service provider

CSC: Cloud service consumer

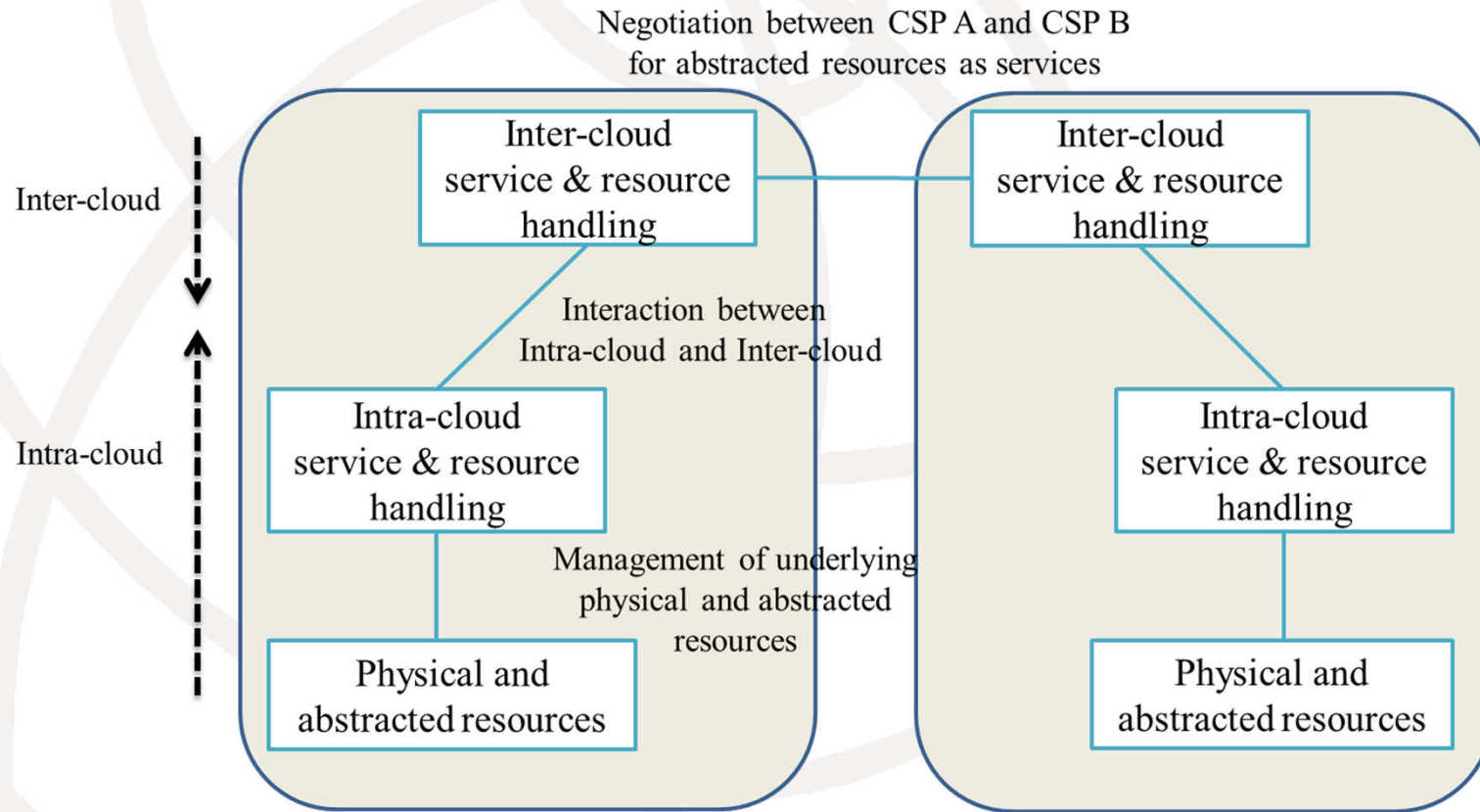
Pattern (model)

- ➔ 3 Collaboration patterns:
 - Peering, Federation, Intermediary



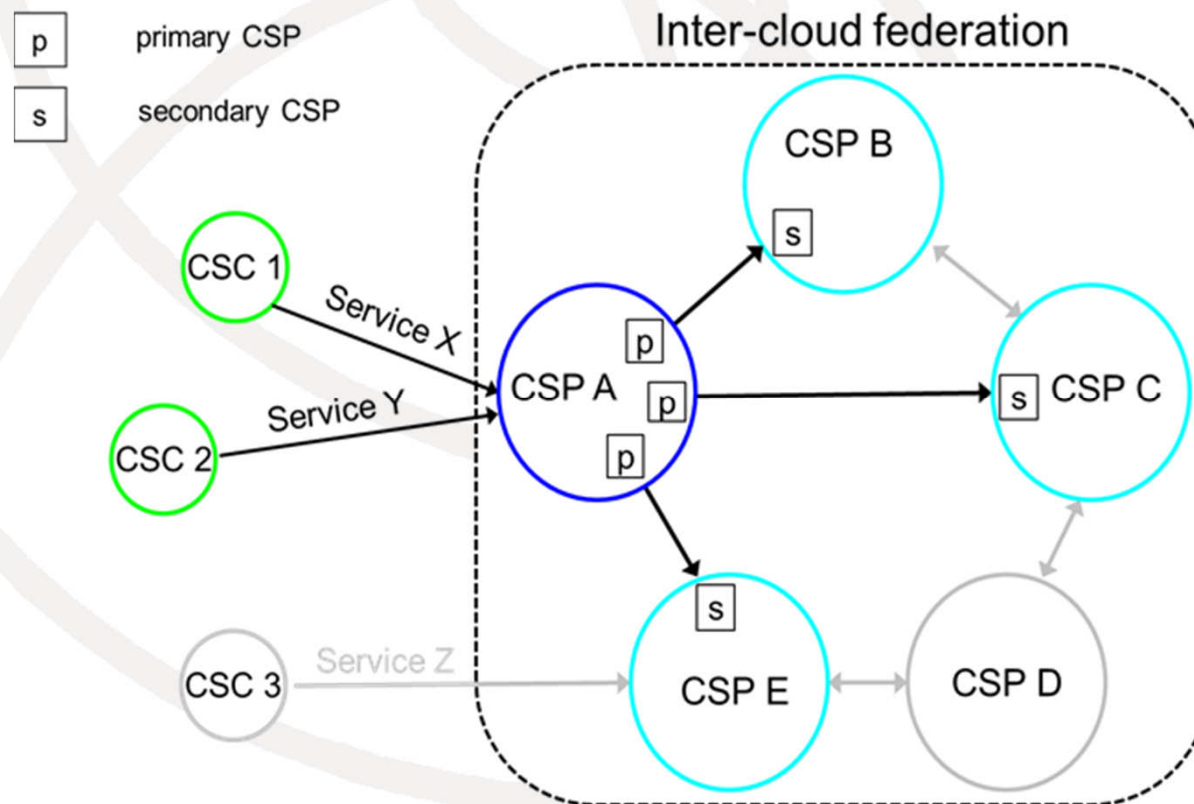
Overview (1/4)

➔ Overview of relationship between inter- and intra-cloud



Overview (2/4)

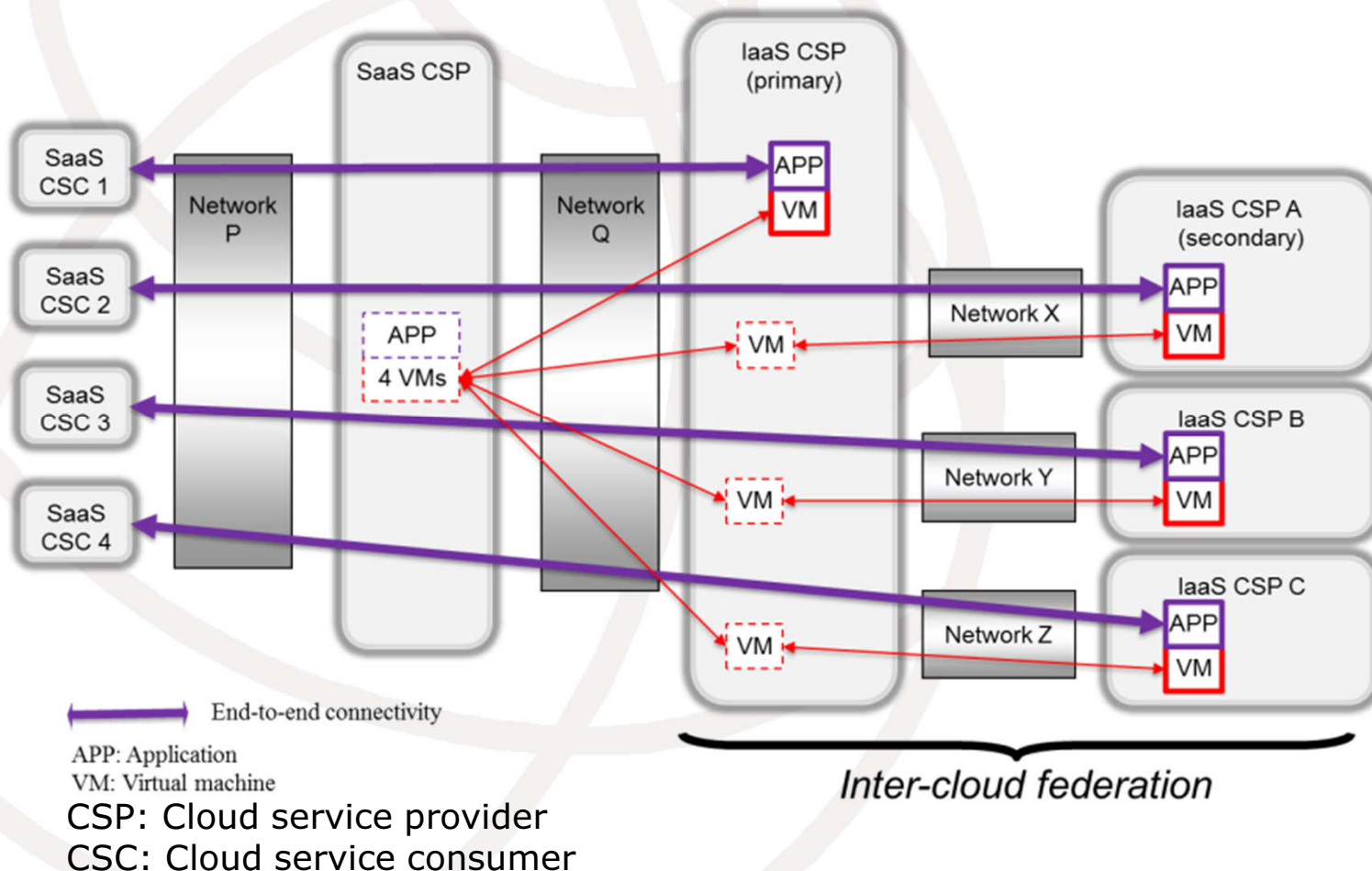
- ➔ Interconnection and relationship between primary and secondary CSP (The following figure shows the case of the federation pattern.)



CSP: Cloud service provider
CSC: Cloud service consumer

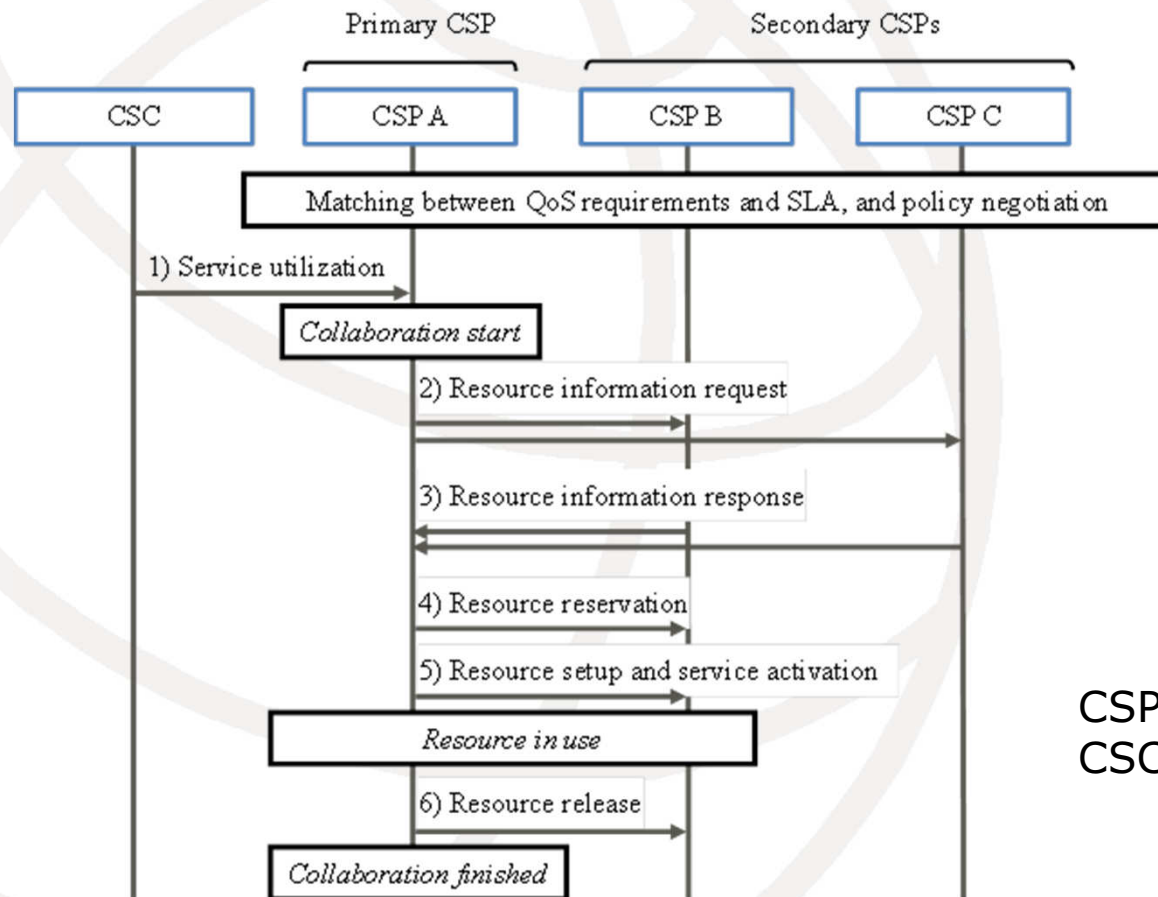
Overview (3/4)

- Complicated network connectivity among primary IaaS CSP, secondary IaaS CSPs, SaaS CSP and SaaS CSC (The following figure shows the case of the federation pattern.)



Overview (4/4)

- Information flow between CSPs for collaboration including resource discovery, reservation, setup, and release (The following figure shows the case of the federation pattern.)



CSP: Cloud service provi
CSC: Cloud service cons

Functional Requirement

- SLA and policy negotiation
- Resource monitoring
- Resource performance estimation and selection
- Resource discovery and reservation
- Resource setup and activation
- Cloud services switchover and switchback
- Resource release
- CSC information exchange
- Primary CSP role delegation
- Inter-cloud service handling