# CLOUD SERVICE ARCHITECTURE

DR. JUNE SUNG PARK, KAIST

http://flavors.me/june_sung_park

# MODULE OBJECTIVE

- Understand the value chain of cloud service business

- Understand essential components of a cloud service system.

- Understand key technologies enabling cloud computing.

# CLOUD SERVICE CONSUMPTION MODEL

- Cloud computing model drives revolutionary changes in how companies and individuals acquire computing capabilities and IT solutions.



Subscribe

Provision     Assure Service     Meter Usage

Bill
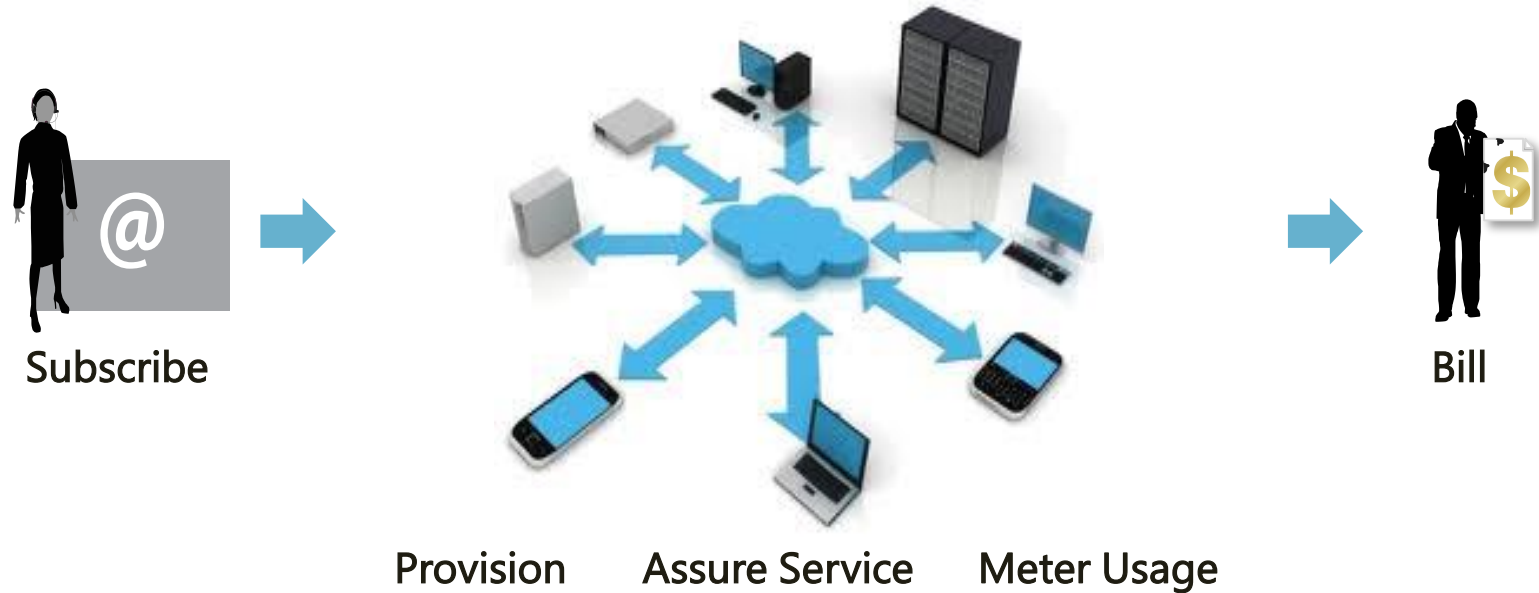
# CLOUD SERVICE SUPPLY MODEL

- Cloud computing model drives revolutionary changes in how computing capabilities and IT solutions are designed, built, delivered, sourced and managed.

**Cloud Service Provider (External or Internal to Consumer Organization)**



| Cloud Service Strategy | Cloud Service Infrastructure & Offering | Cloud Service Marketing & Sales | Cloud Service Assurance & Billing |

| Product Portfolio Strategy | Product Development and Marketing | Product License and Maintenance Sales | Customer Support |

**Software Product Vendor**

# CLOUD SERVICE VALUE CHAIN

- Cloud computing model drives revolutionary changes in how IT providers and consumers interact to create value for the consumers.

**Cloud Service Provider (External or Internal to Consumer Organization)**

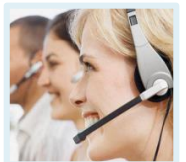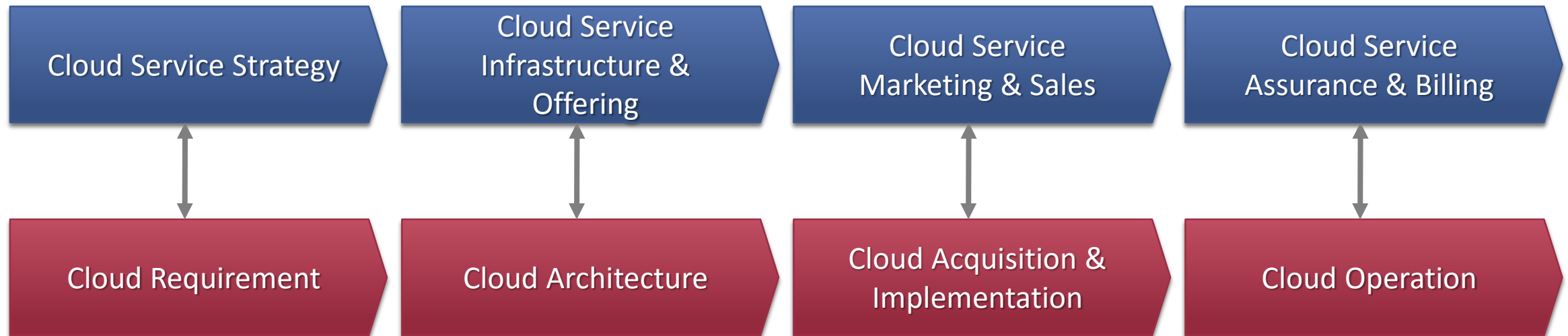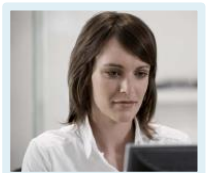| Cloud Service Strategy | Cloud Service Infrastructure & Offering | Cloud Service Marketing & Sales | Cloud Service Assurance & Billing |
|---|---|---|---|
| Cloud Requirement | Cloud Architecture | Cloud Acquisition & Implementation | Cloud Operation |

**Cloud Service Consumer**

# CLOUD SERVICE VALUE CHAIN AND ARCHITECTURE
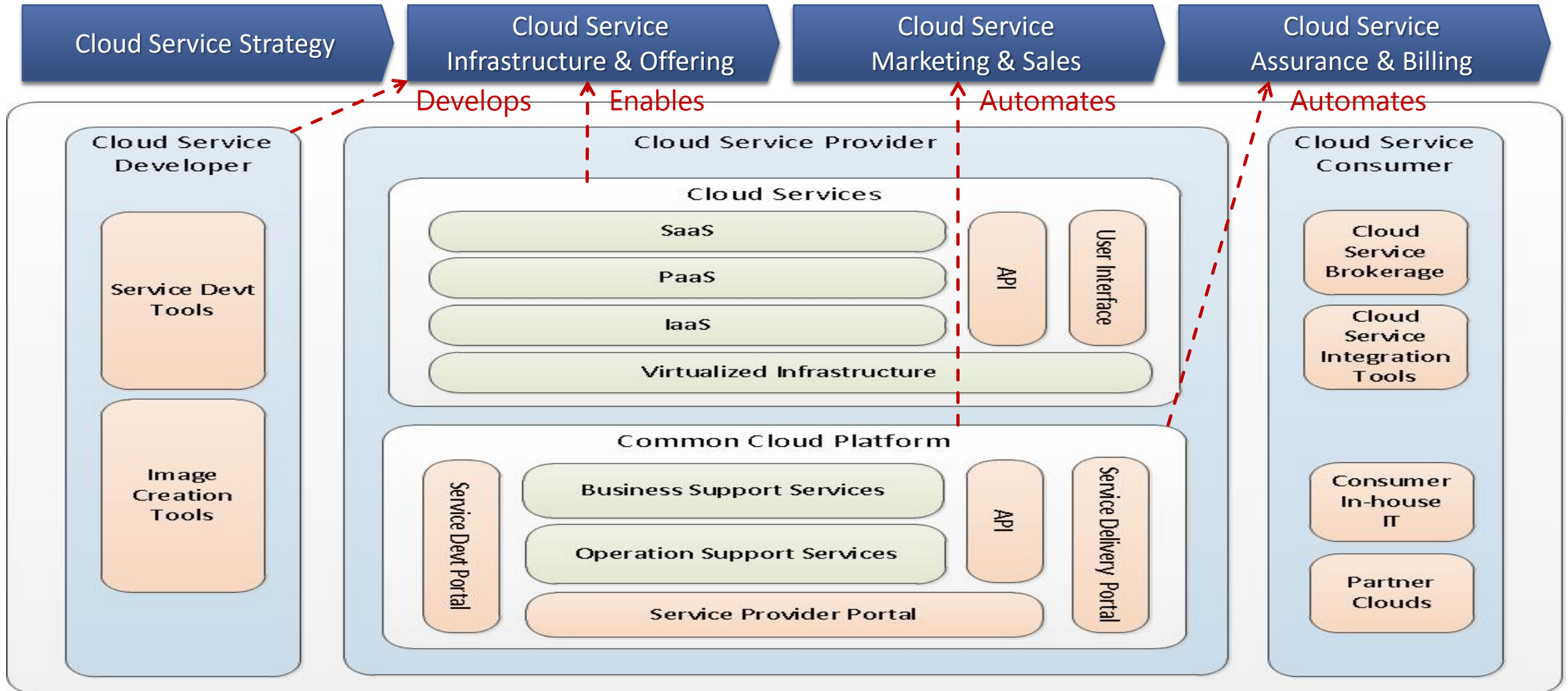
Learn to share

**Shared & Multitenant**


Get it yourself

**Self-service**


All you can eat

**Elasticity & Scalability**


Pay per use

**Usage-Based Pricing**

**Cloud Service Developer**
- Service Devt Tools
- Image Creation Tools

**Cloud Service Provider**

**Cloud Services**
- SaaS
- PaaS
- IaaS
- Virtualized Infrastructure
- API
- User Interface

**Common Cloud Platform**
- Service Devt Portal
- Business Support Services
- Operation Support Services
- Service Provider Portal
- API
- Service Delivery Portal

**Cloud Service Consumer**
- Cloud Service Brokerage
- Cloud Service Integration Tools
- Consumer In-house IT
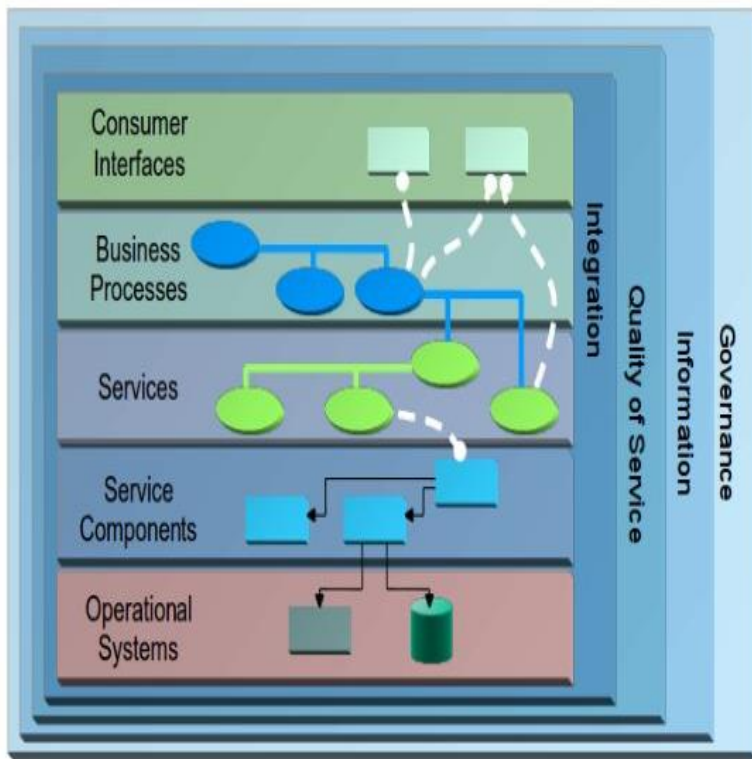- Partner Clouds
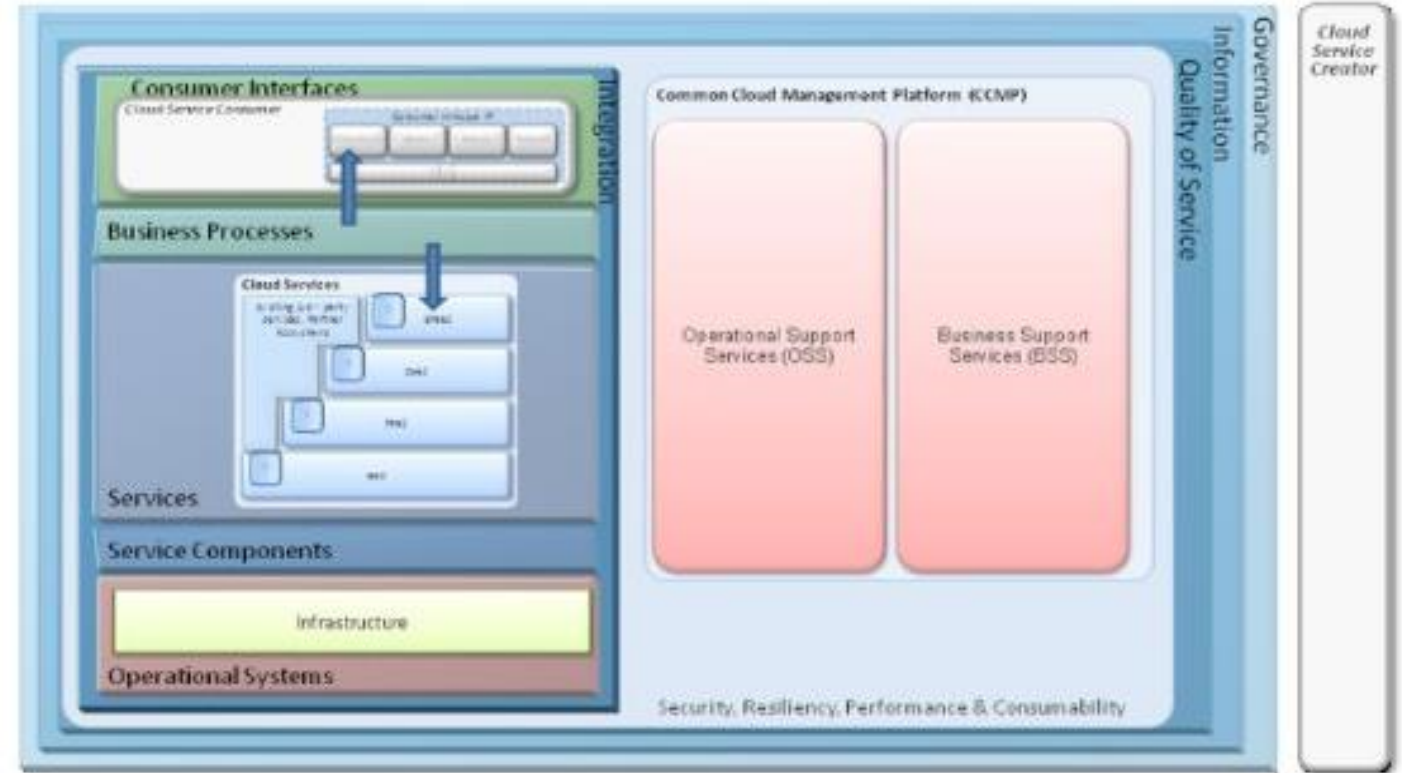
# CLOUD MANAGEMENT PLATFORM (B/OSS)
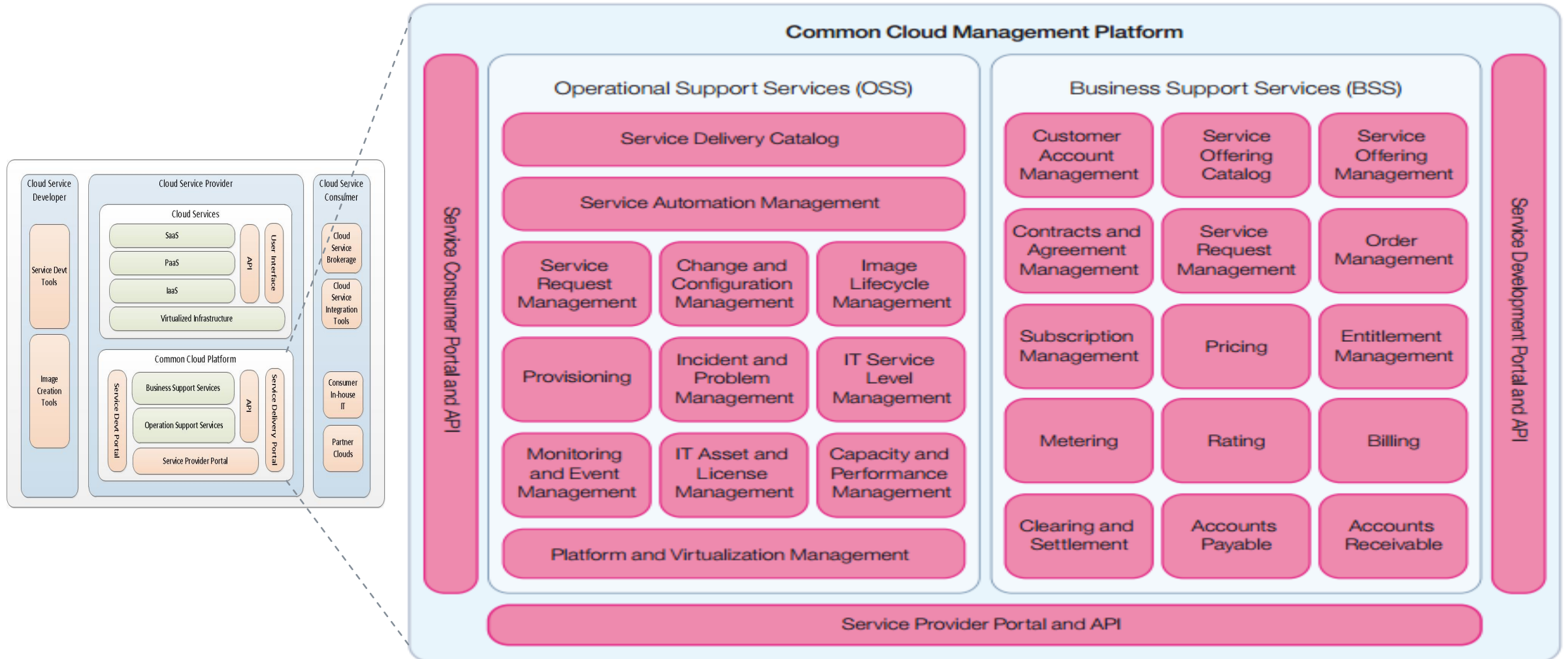
# CLOUD SERVICE ARCHITECTURE AS SOA

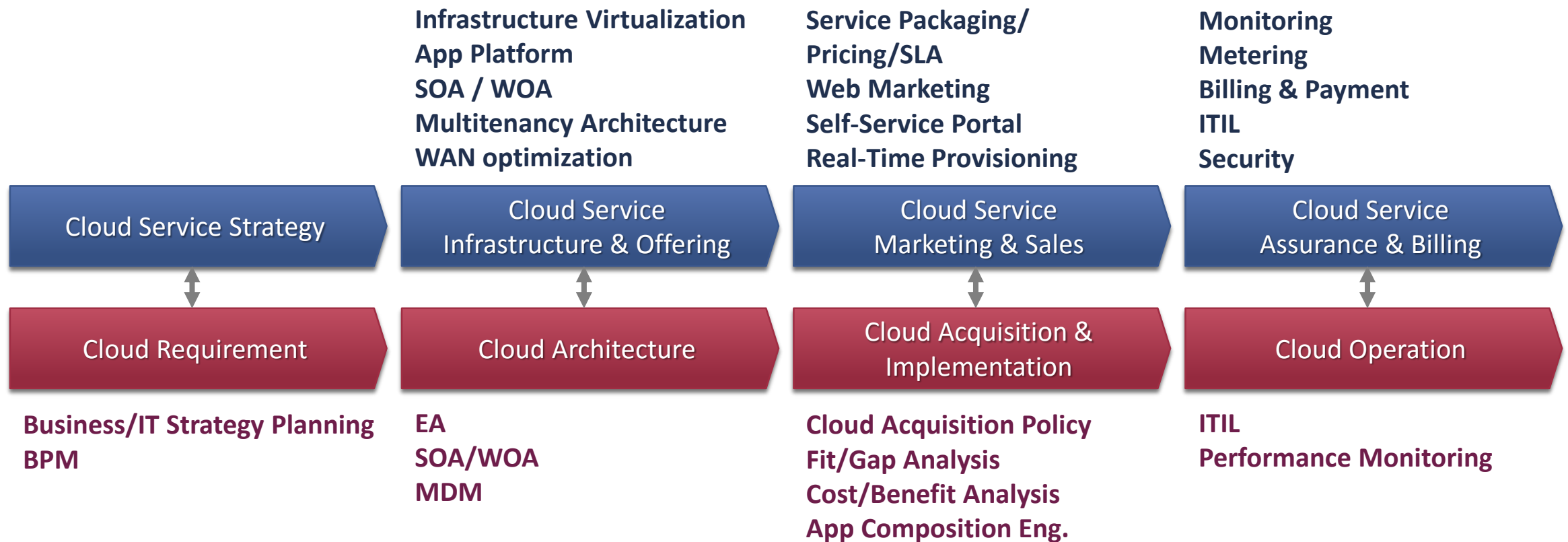- IBM has developed a reference architecture for cloud services as an extension of the SOA reference architecture.
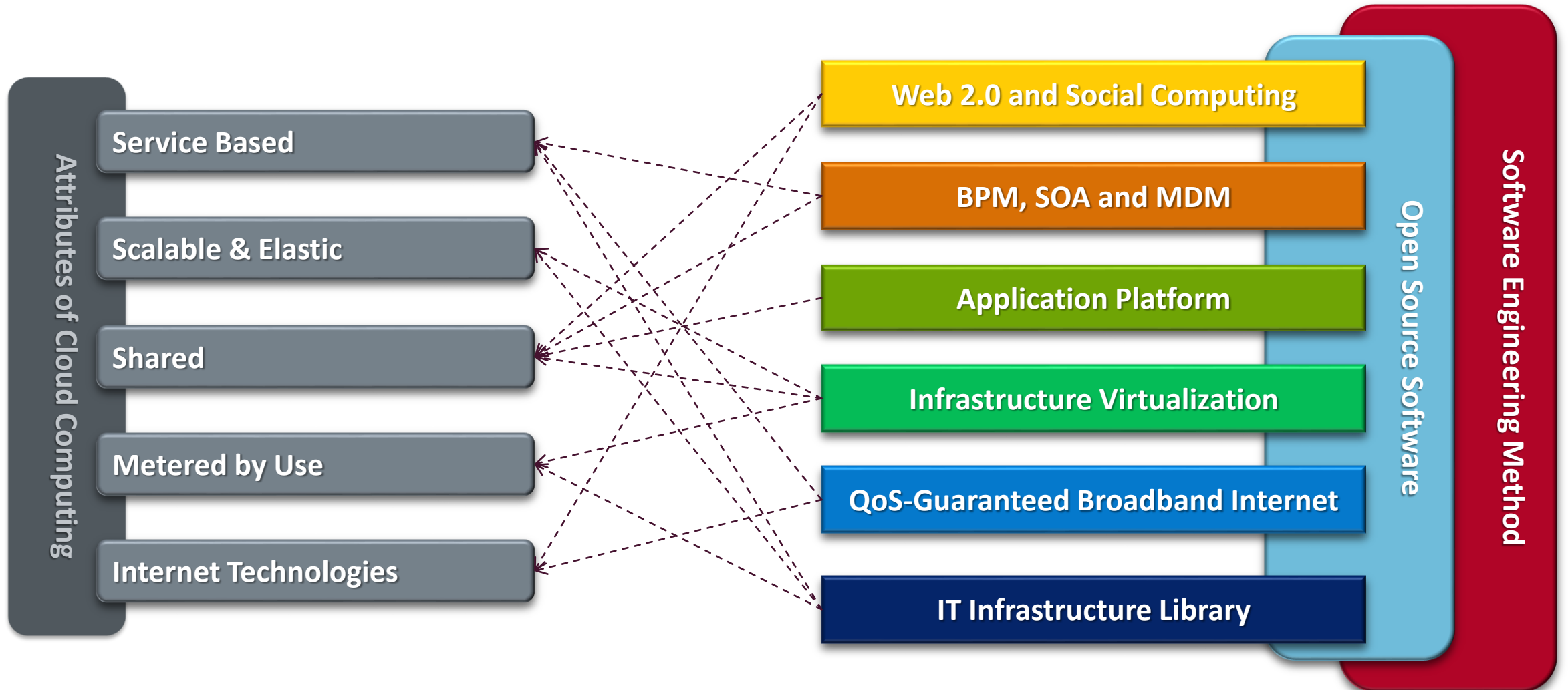


**Service-Oriented Architecture**                    **Cloud Service Architecture**

# TECHNOLOGIES ENABLING CLOUD SERVICES

- As is true of all profound IT changes, the apparent revolution of cloud computing is, in fact, a synergetic aggregation of evolutions in multiple, well-established technology directions.

**Infrastructure Virtualization**
**App Platform**
**SOA / WOA**
**Multitenancy Architecture**
**WAN optimization**

**Service Packaging/**
**Pricing/SLA**
**Web Marketing**
**Self-Service Portal**
**Real-Time Provisioning**

**Monitoring**
**Metering**
**Billing & Payment**
**ITIL**
**Security**

| Cloud Service Strategy | Cloud Service Infrastructure & Offering | Cloud Service Marketing & Sales | Cloud Service Assurance & Billing |

| Cloud Requirement | Cloud Architecture | Cloud Acquisition & Implementation | Cloud Operation |

**Business/IT Strategy Planning**
**BPM**

**EA**
**SOA/WOA**
**MDM**

**Cloud Acquisition Policy**
**Fit/Gap Analysis**
**Cost/Benefit Analysis**
**App Composition Eng.**

**ITIL**
**Performance Monitoring**

# TECHNOLOGIES ENABLING CLOUD SERVICES



**Attributes of Cloud Computing**
- Service Based
- Scalable & Elastic
- Shared
- Metered by Use
- Internet Technologies

- Web 2.0 and Social Computing
- BPM, SOA and MDM
- Application Platform
- Infrastructure Virtualization
- QoS-Guaranteed Broadband Internet
- IT Infrastructure Library

**Open Source Software**

**Software Engineering Method**

# TECHNOLOGIES ENABLING CLOUD SERVICES