



Leveraging OpenStack to Realize the SKT Software-Defined Data Center

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Introduction – About SK Group

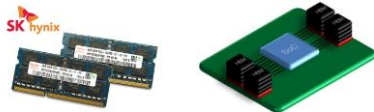
No. 1 Network Operator in Korea



Global Top 2 Memory Semiconductor Player

Memory (DRAM, Flash)

System IC (Foundry, CIS)



Global Platform Player



T-Map



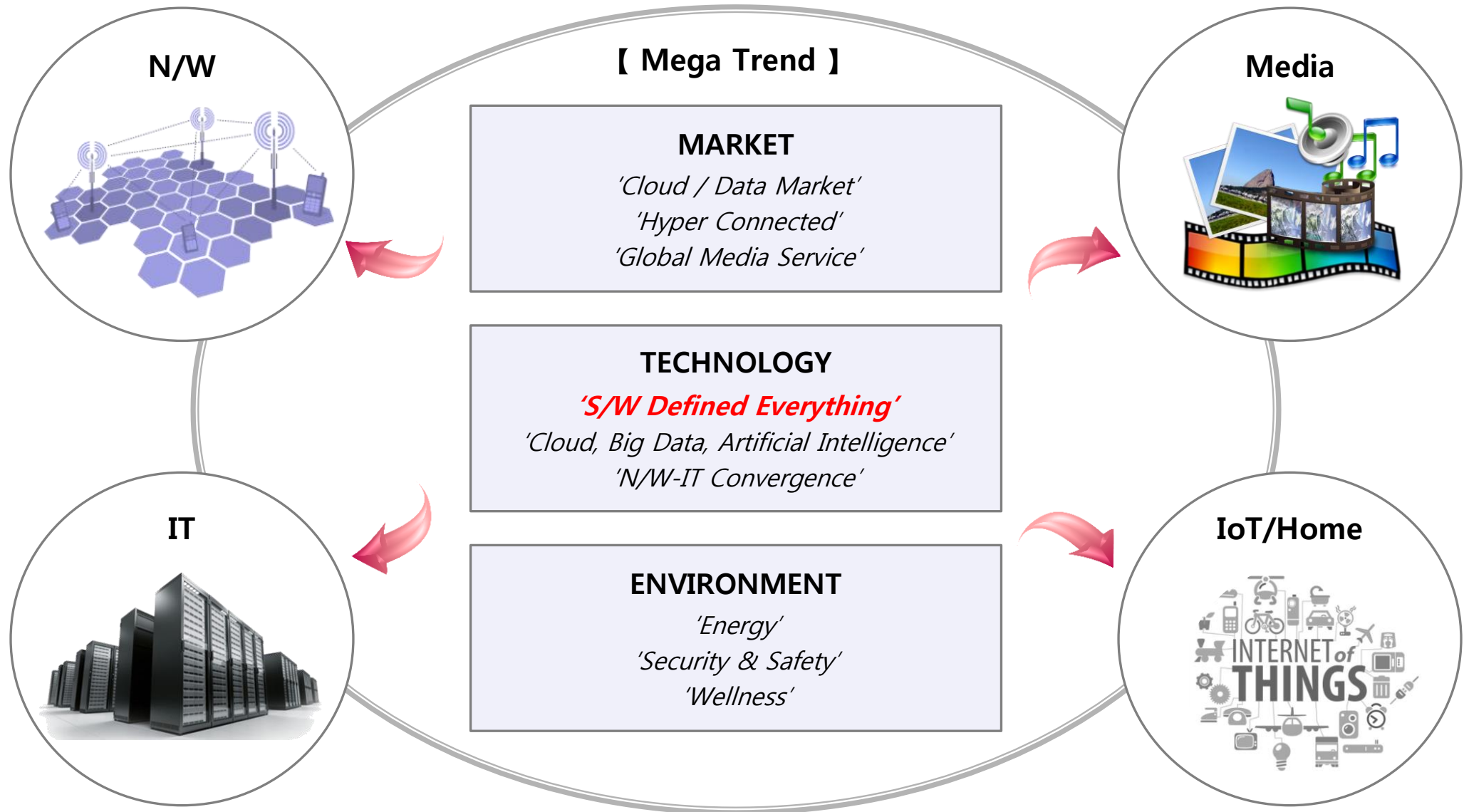
Total IT Service Provider

IT Outsourcing, IT Consulting

System Integration



Introduction – ICT Mega Trend



SKT Cloud Service Portfolio

【 Public Cloud 】

○ B2B Public Cloud Service



(www.tcloudbiz.com)

- ✓ Cloud Server
- ✓ Cloud Storage
- ✓ Hybrid Cloud
- ✓ Cloud Security



(www.tbizpoint.com)

- ✓ Enterprise Solution
- ✓ Groupware Solution
- ✓ Collaboration Solution
- ✓ System Support

○ B2C Public Cloud Service



(www.tcloud.com)

- ✓ Picture/Video
- ✓ File/Document
- ✓ Address

○ Developer's Center



(developers.sktelecom.com)

- ✓ T-API
- ✓ Backend as a Service
- ✓ Development Tools

【 Private Cloud 】

○ Dev/Operation Cloud (T Shared Infra)

- ✓ Internal Cloud Service for Development
- ✓ External Cloud Service for Operation
- ✓ Interface Internal Systems

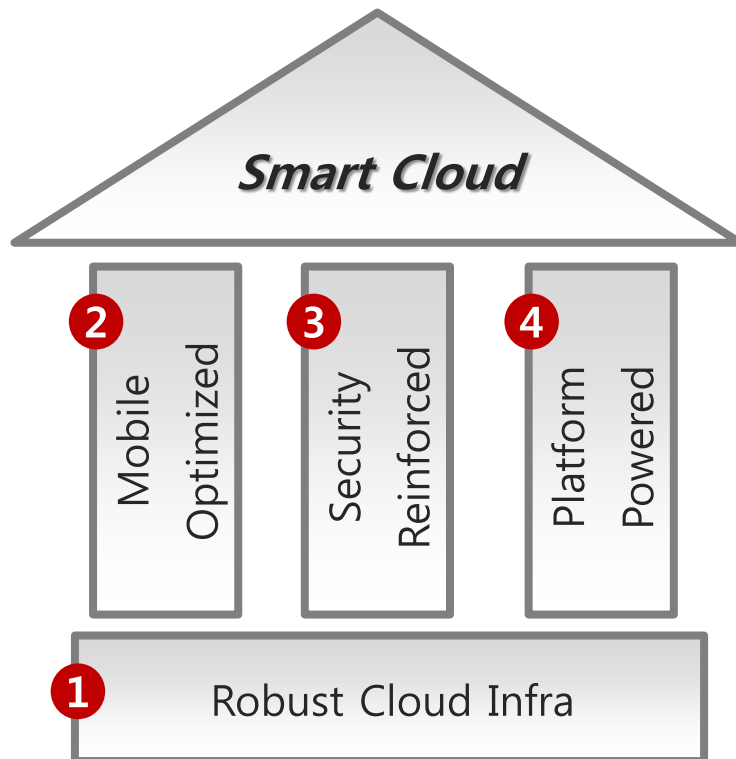
○ Fast Delivery Center

- ✓ Internal Cloud Service, especially for Developing Solution Development

○ Cloud for N/W Service (IPC Center)

- ✓ Internal Cloud Service, especially for Developing Network Solution
- ✓ Network Function Virtualization

【 T cloud biz Values 】



1 Robust Cloud Infra

- 99.9% Service Availability

2 Mobile Optimized

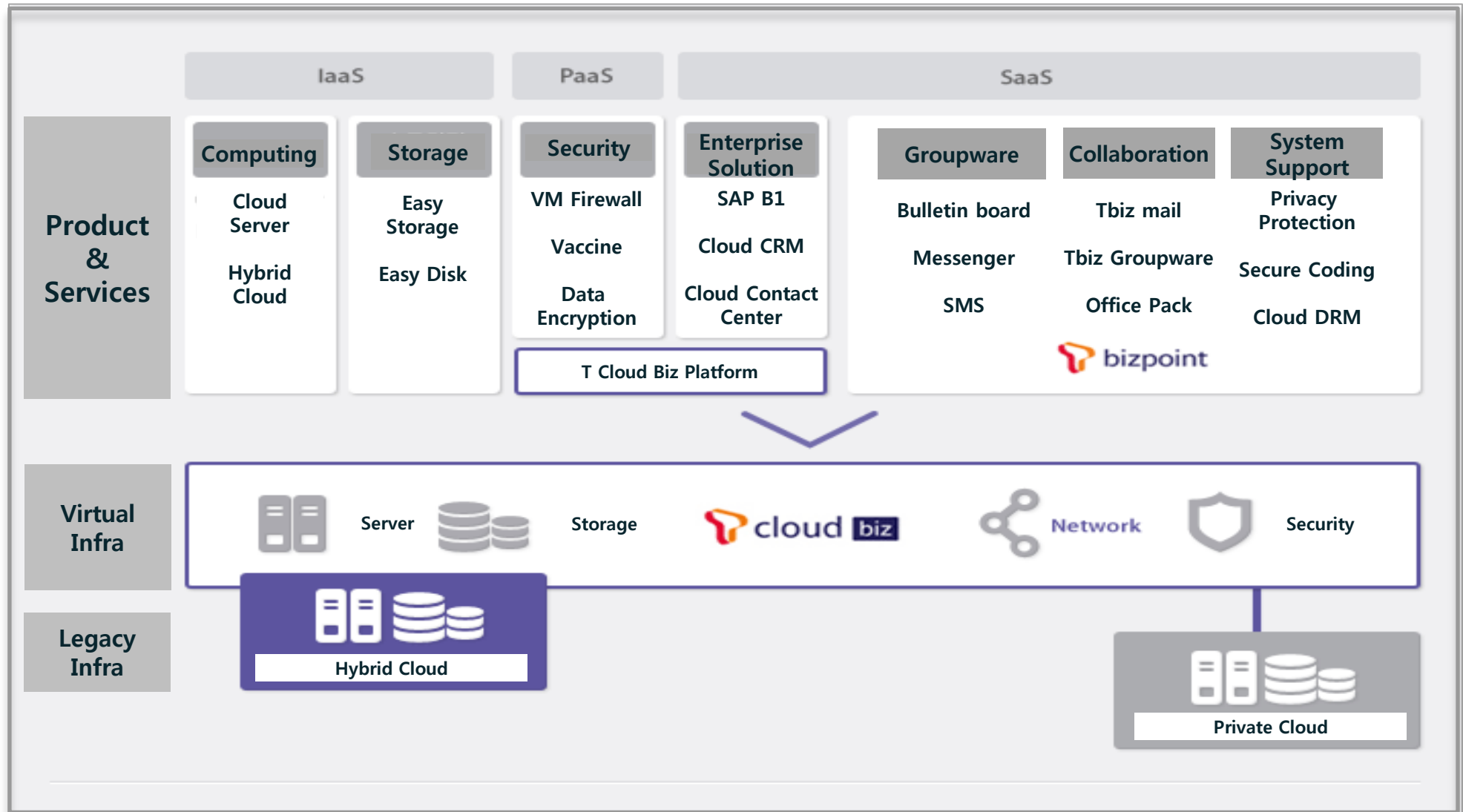
- Mobile Device & Network Optimized

3 Security Reinforced

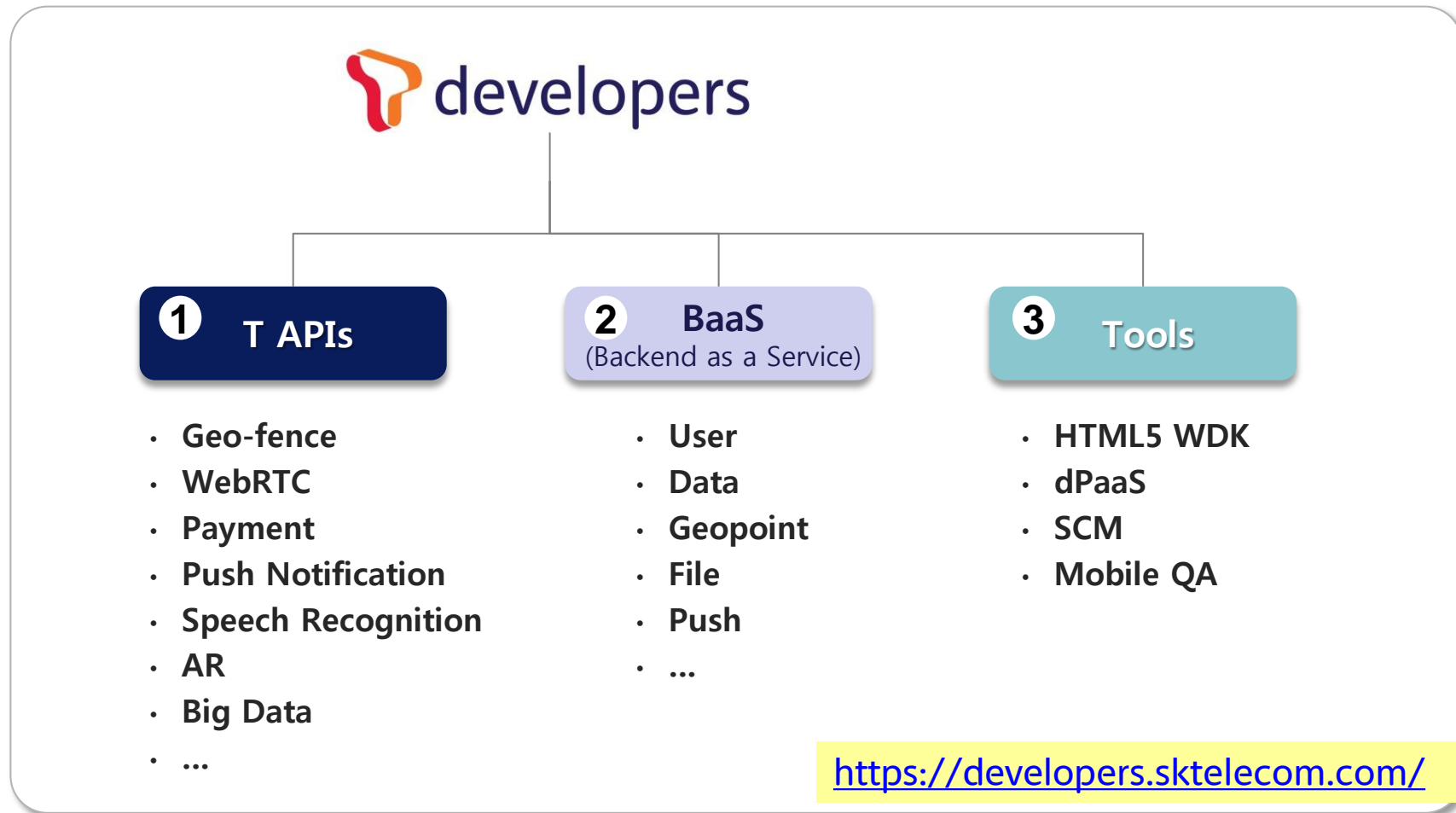
- Telco Level Security Reinforce

4 Platform Powered

- Customer forced Convenience

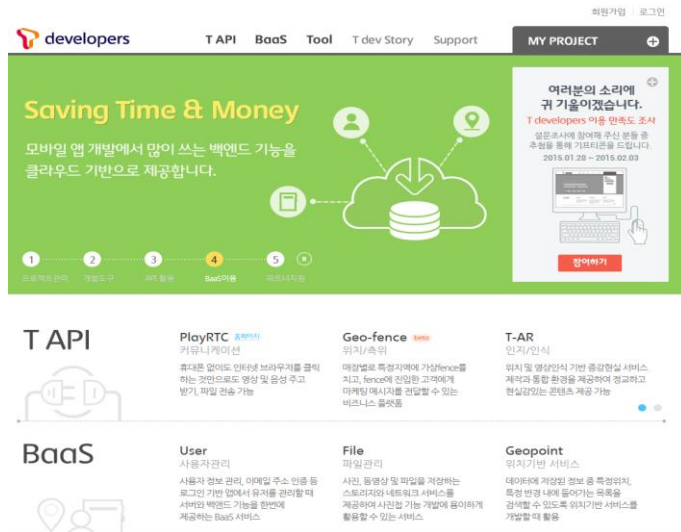


Targeted for mobile app development utilizing telco assets & APIs

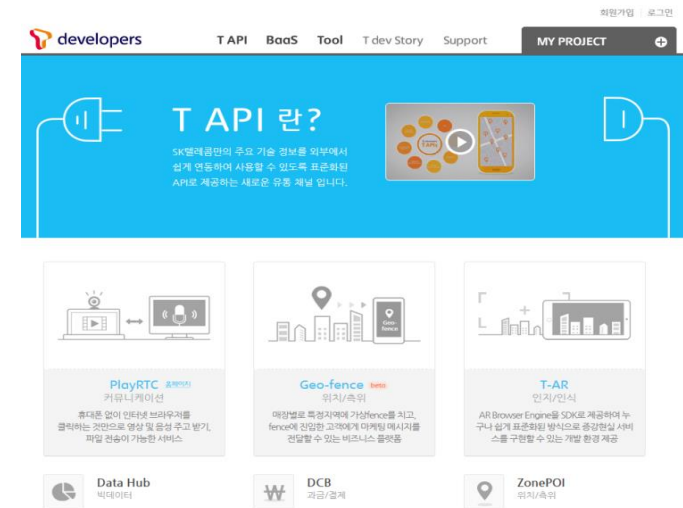


T developers Screenshots

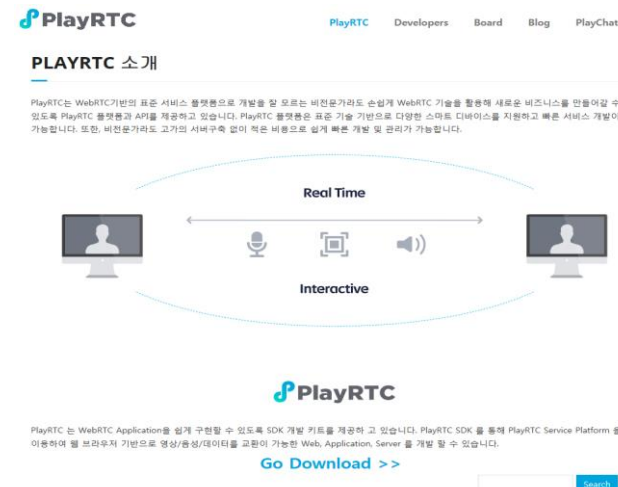
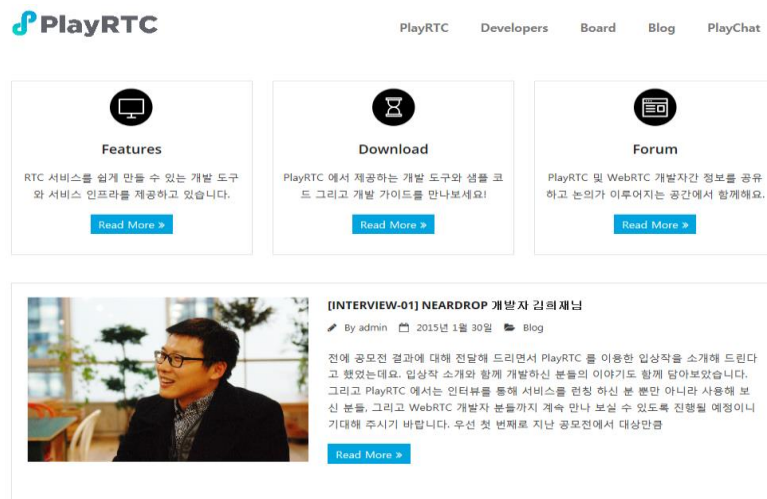
T developers (<https://developers.sktelecom.com>)



T API



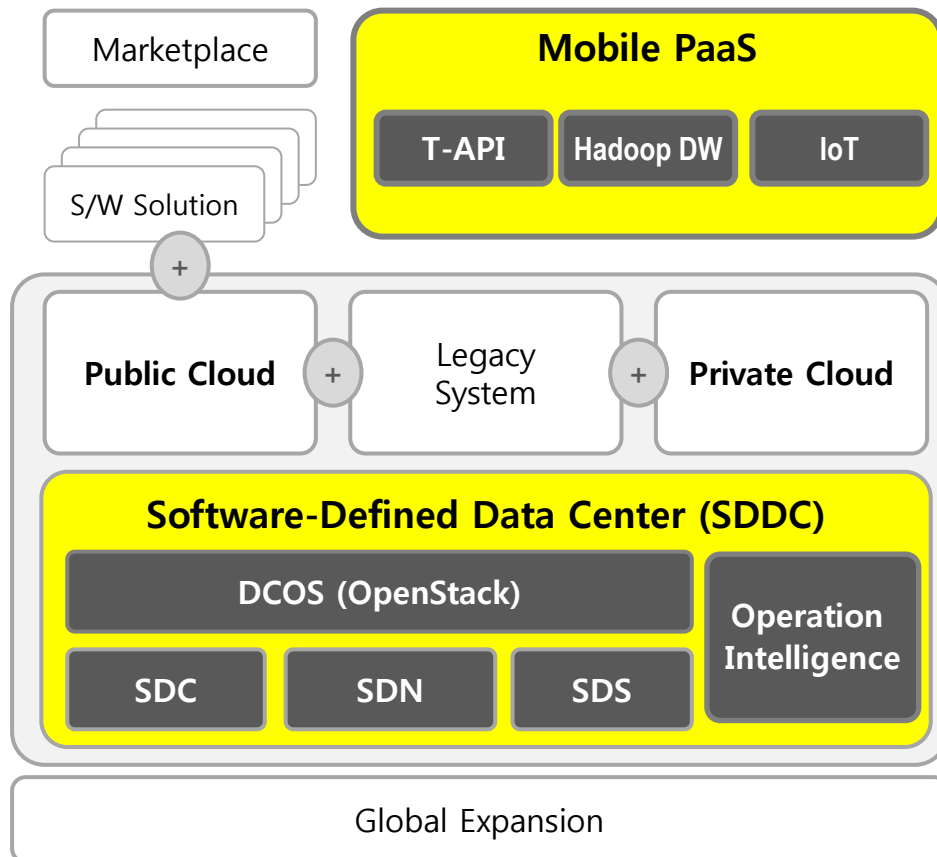
PlayRTC (<http://www.playrtc.com>)



Strategy to Develop Next Generation Cloud

Develop Software-Defined Data Center (SDDC) leveraging OpenStack

【 To-be Cloud Architecture 】



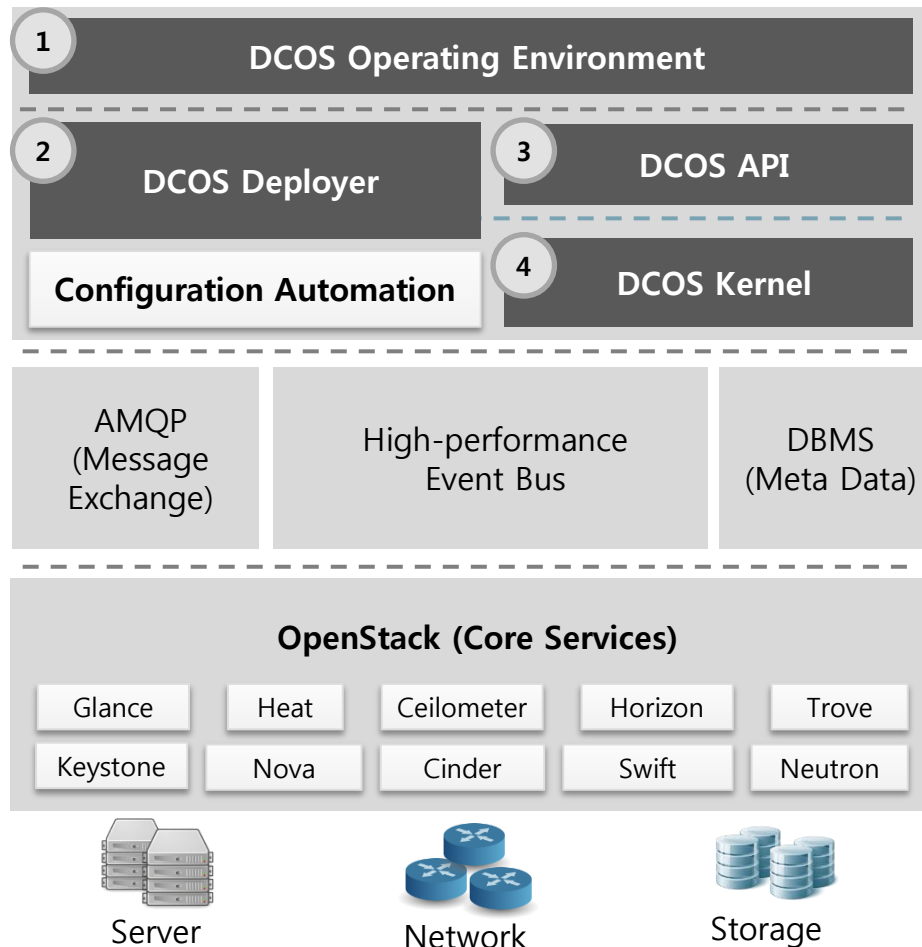
【 Ecosystem 】



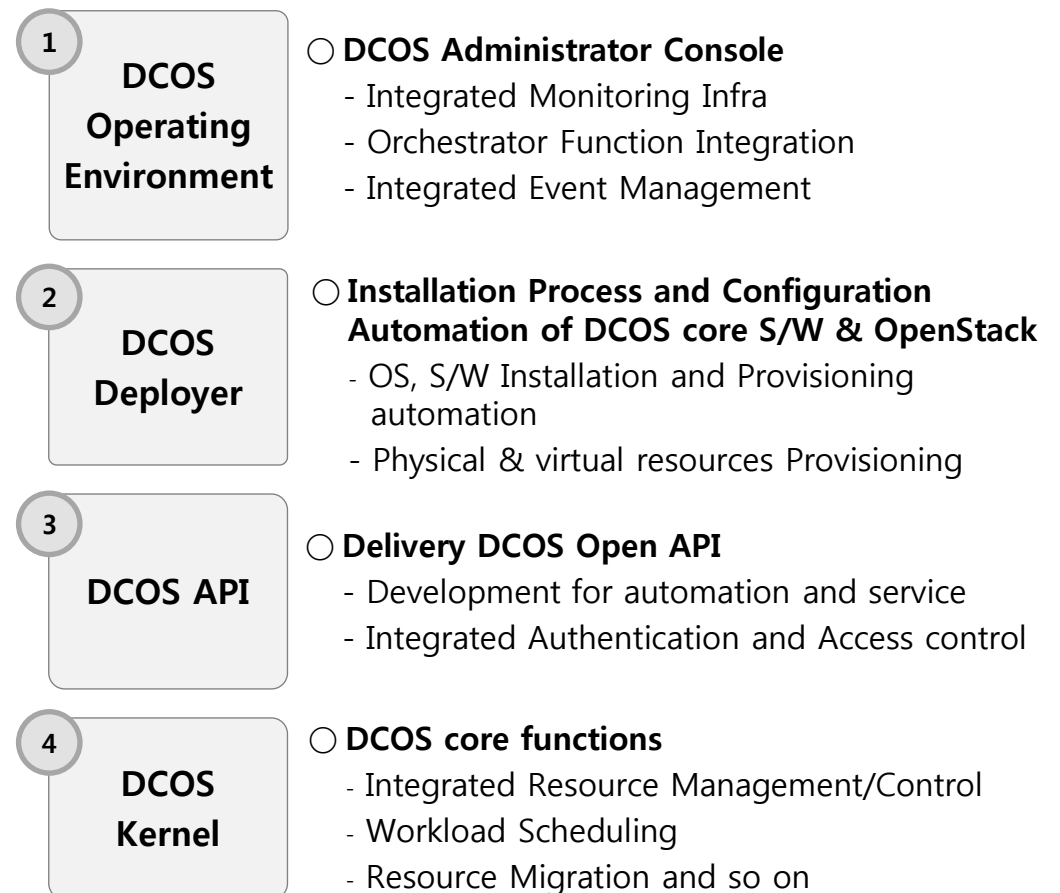
Data Center OS (DCOS)

Operating System for Warehouse-Scale Computer

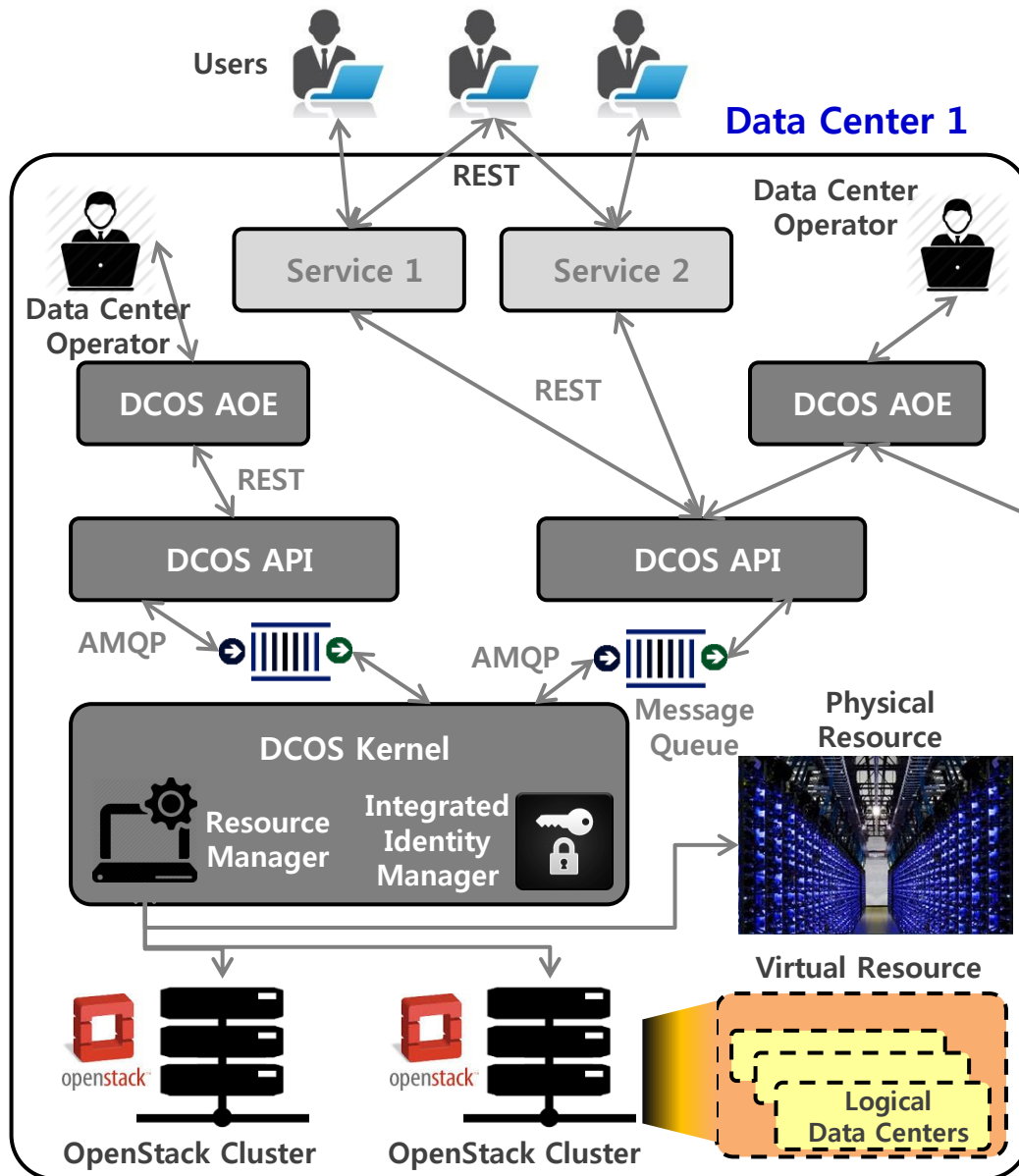
【 Architecture 】



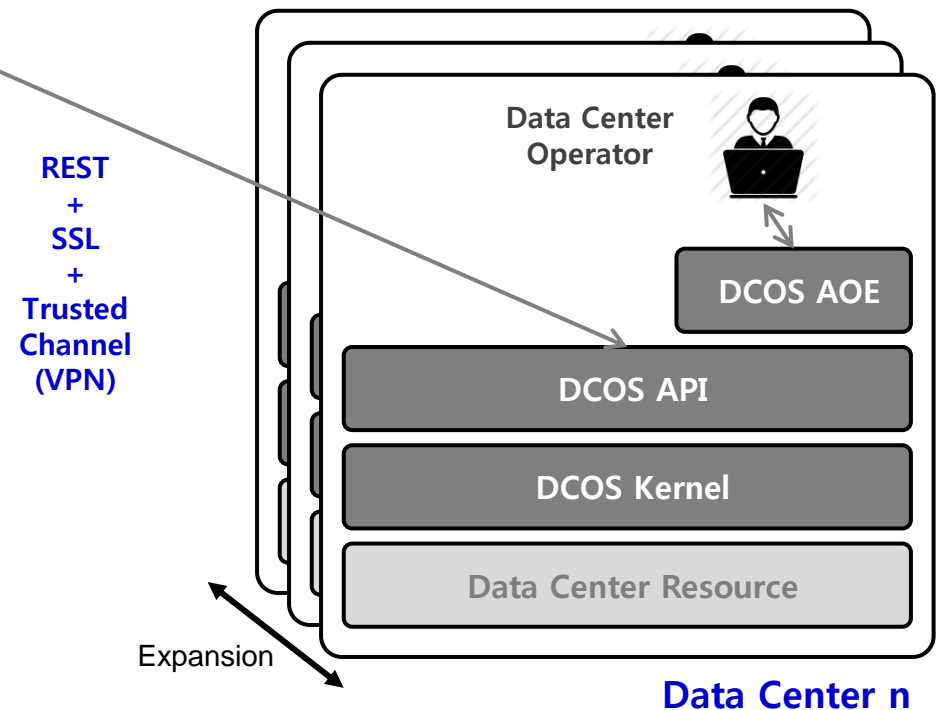
【 Tasks 】



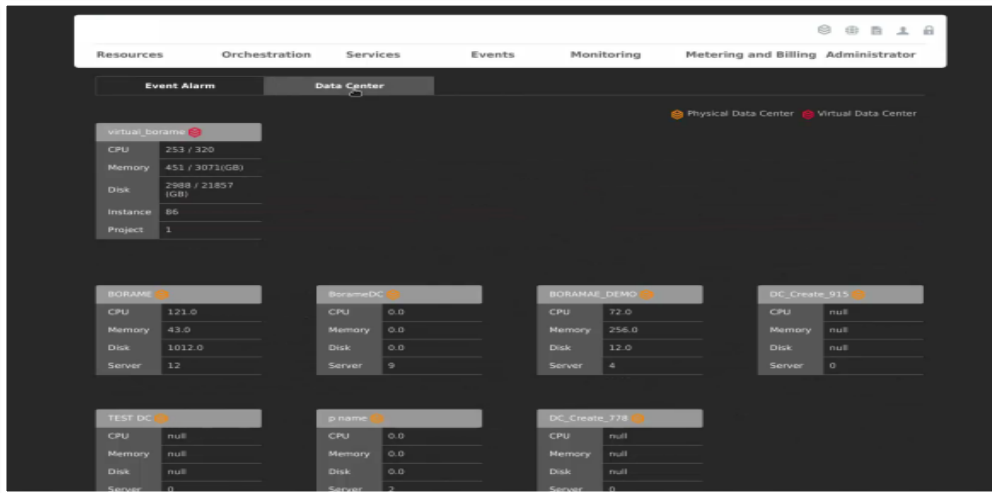
DCOS Operation Model



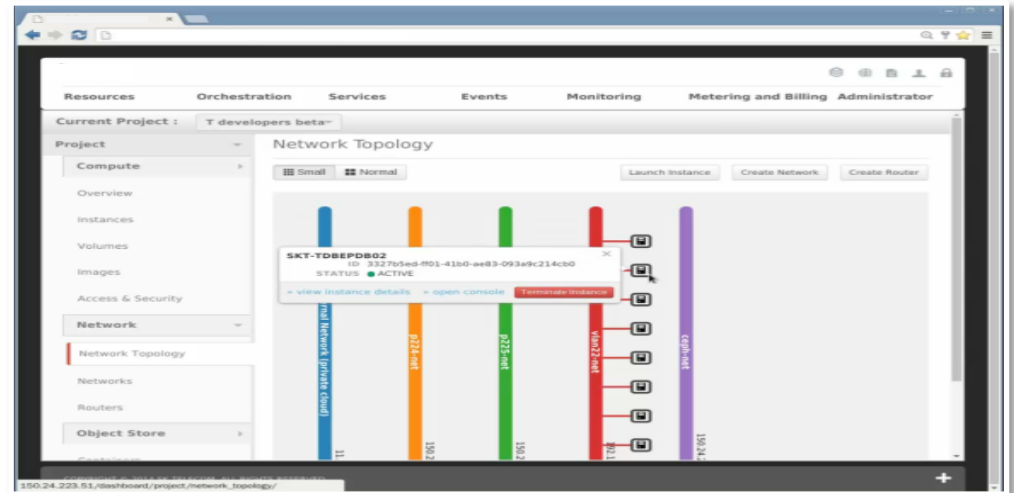
- Support multi-datacenter operation through integration of DCOS AOE to DCOS API
- DCOS API can be extended in scalable ways
- DCOS Kernel manages operation on physical resources and on virtual resources seamlessly



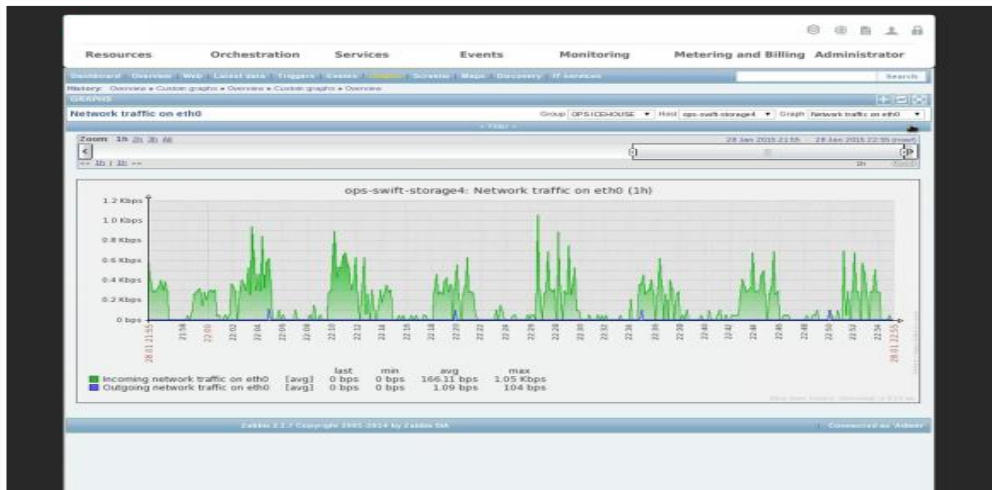
DCOS Screenshots



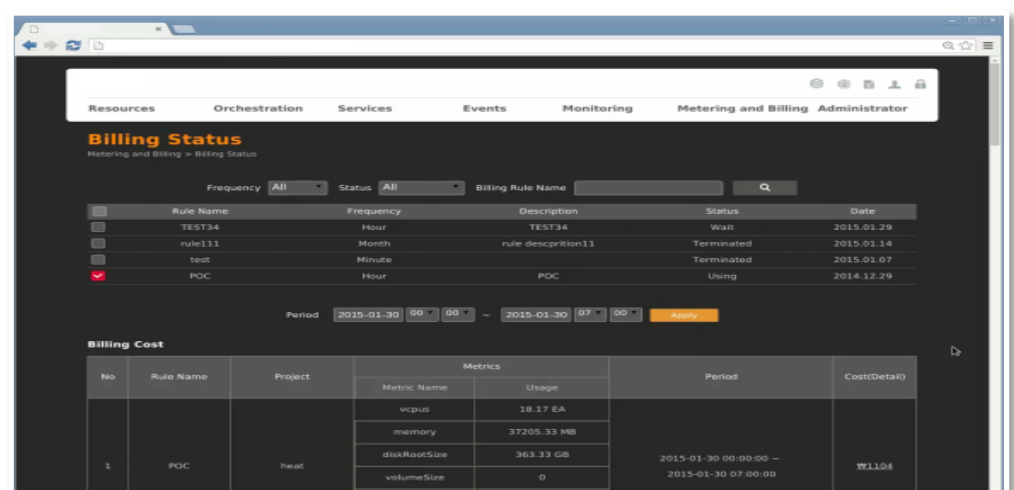
Multi-datascenter operation



Virtual resource management
with integrated
OpenStack Horizon



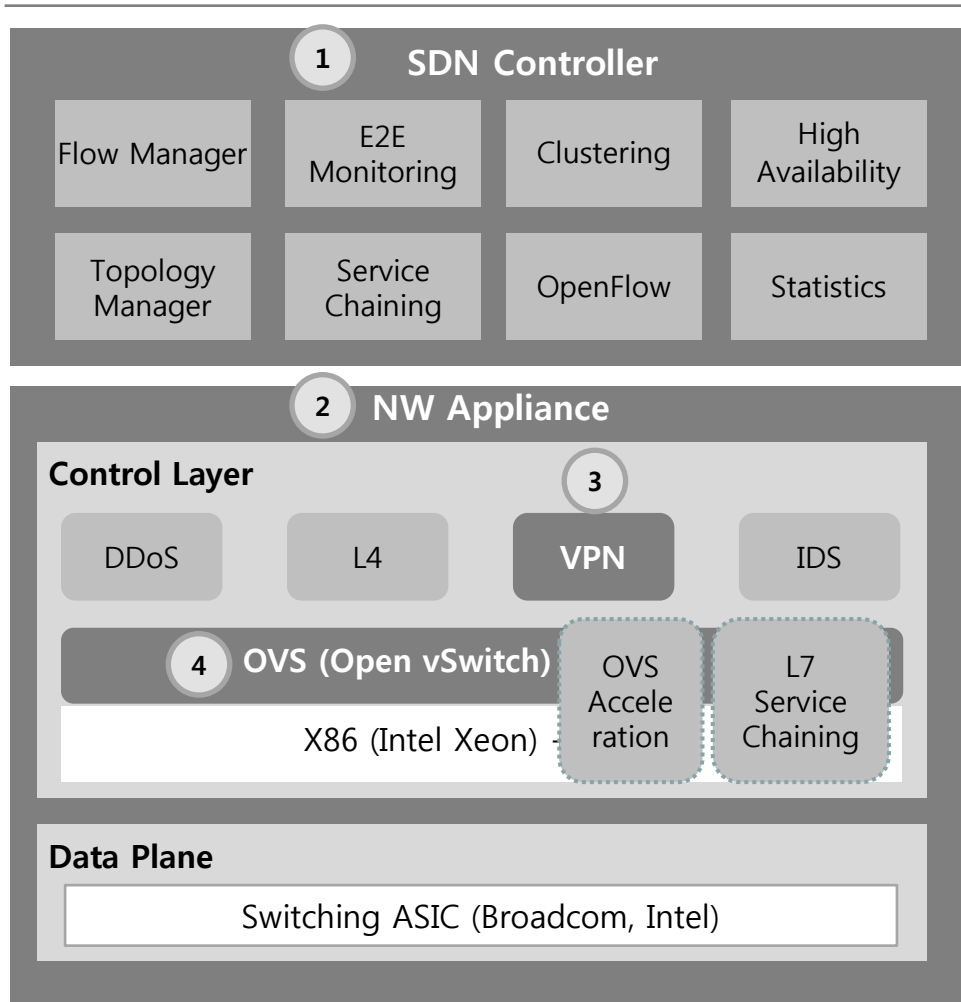
Advanced monitoring
(Zabbix supported)



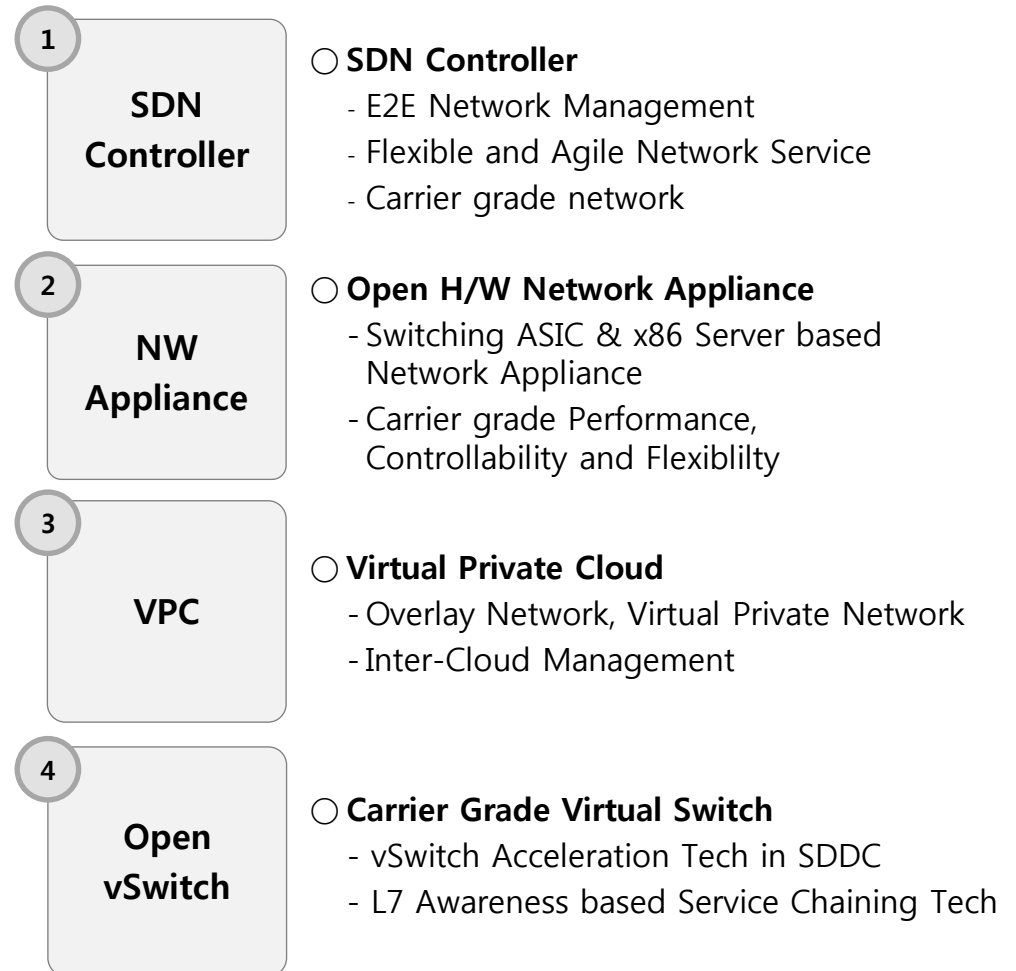
Metering and billing

Software-Defined Networking

【 Architecture 】



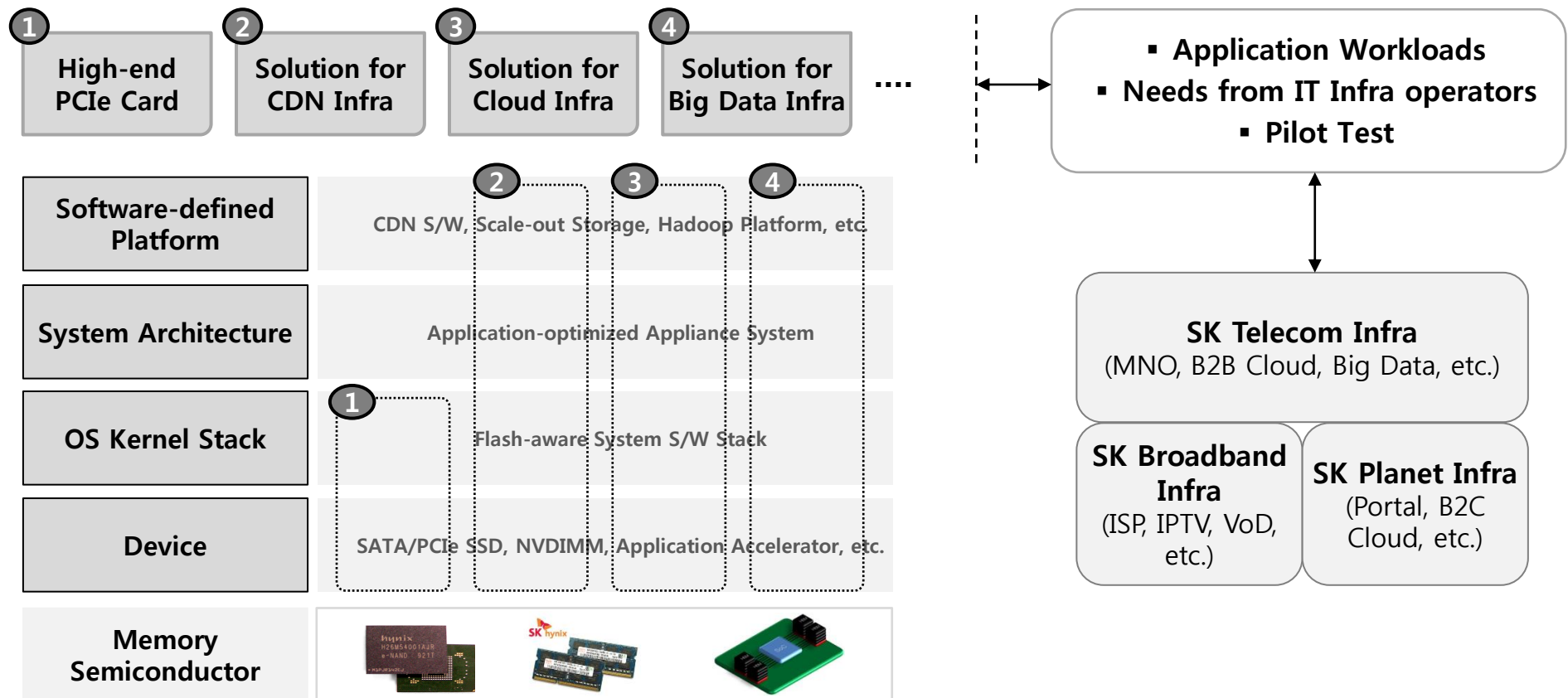
【 Tasks 】



Software-Defined Storage

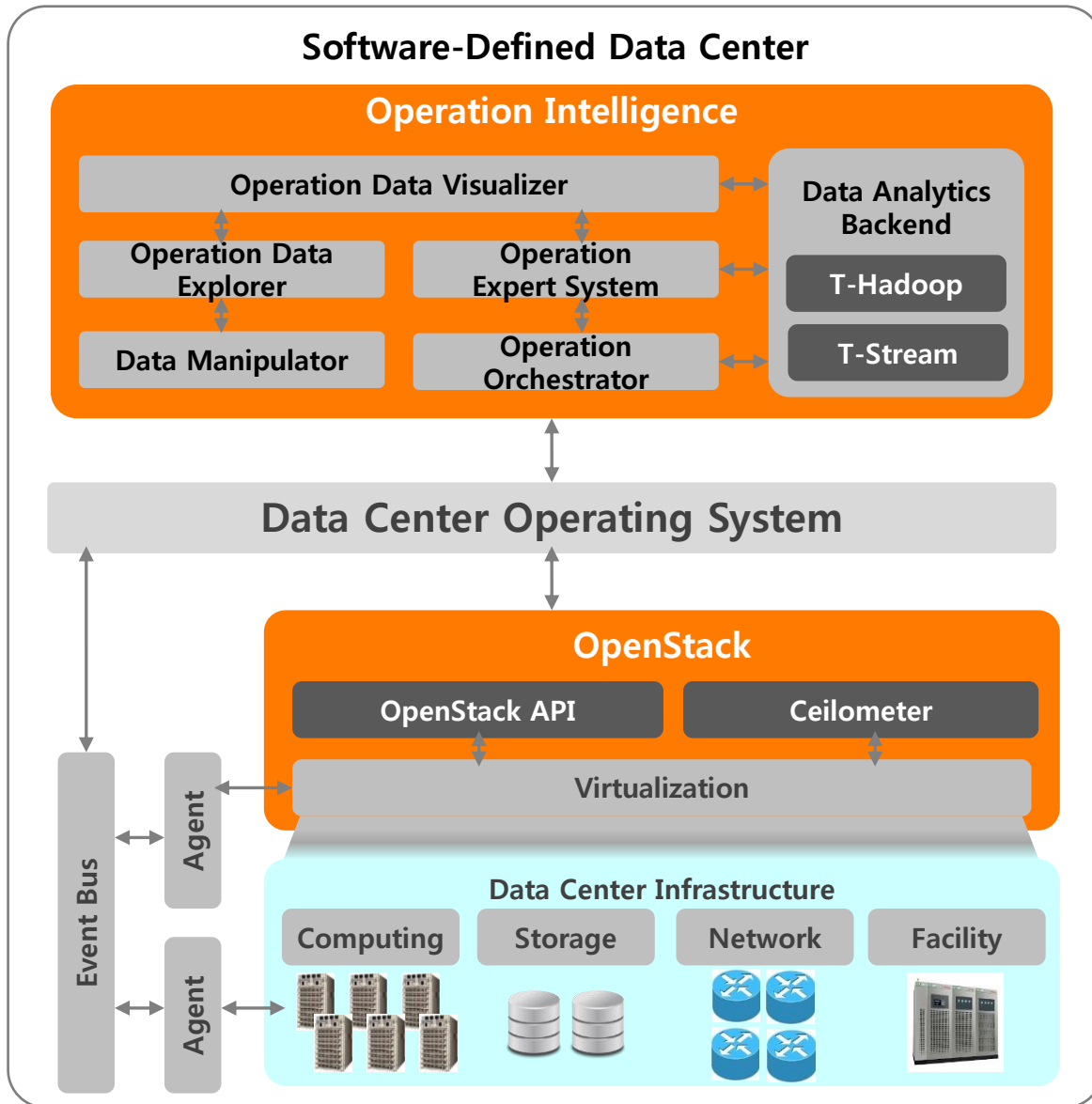
Leveraging SSD technologies from SK hynix

Vertically Optimized Storage Solutions For Major Emerging Applications



Employing SK hynix products for general spec. Flash & DRAM memory devices

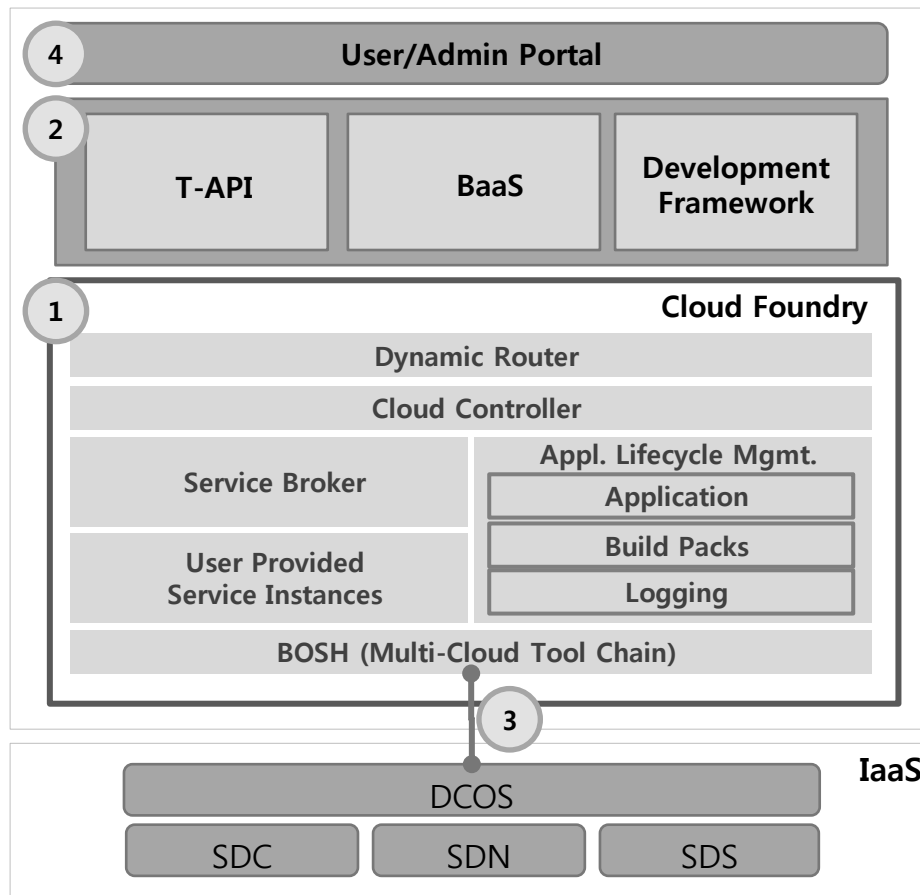
Operation Intelligence



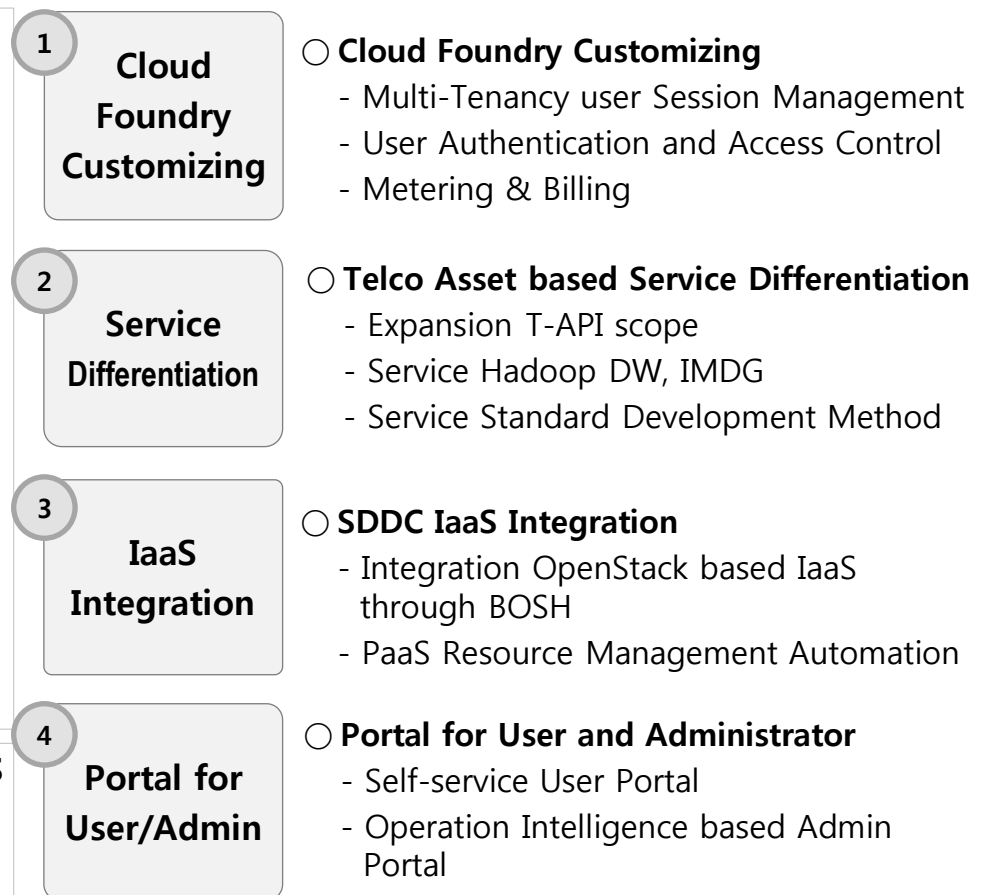
- **OpenStack as an operation data management system**
 - ✓ Ceilometer collects and archives operation data
 - ✓ Ceilometer API provides route to operation intelligence
- **OpenStack as an operation controller core**
 - ✓ OpenStack API accepts operation control commands from the OI system and deliver the commands to virtualized IT Infra

Mobile optimized PaaS platform and services based on Cloud Foundry

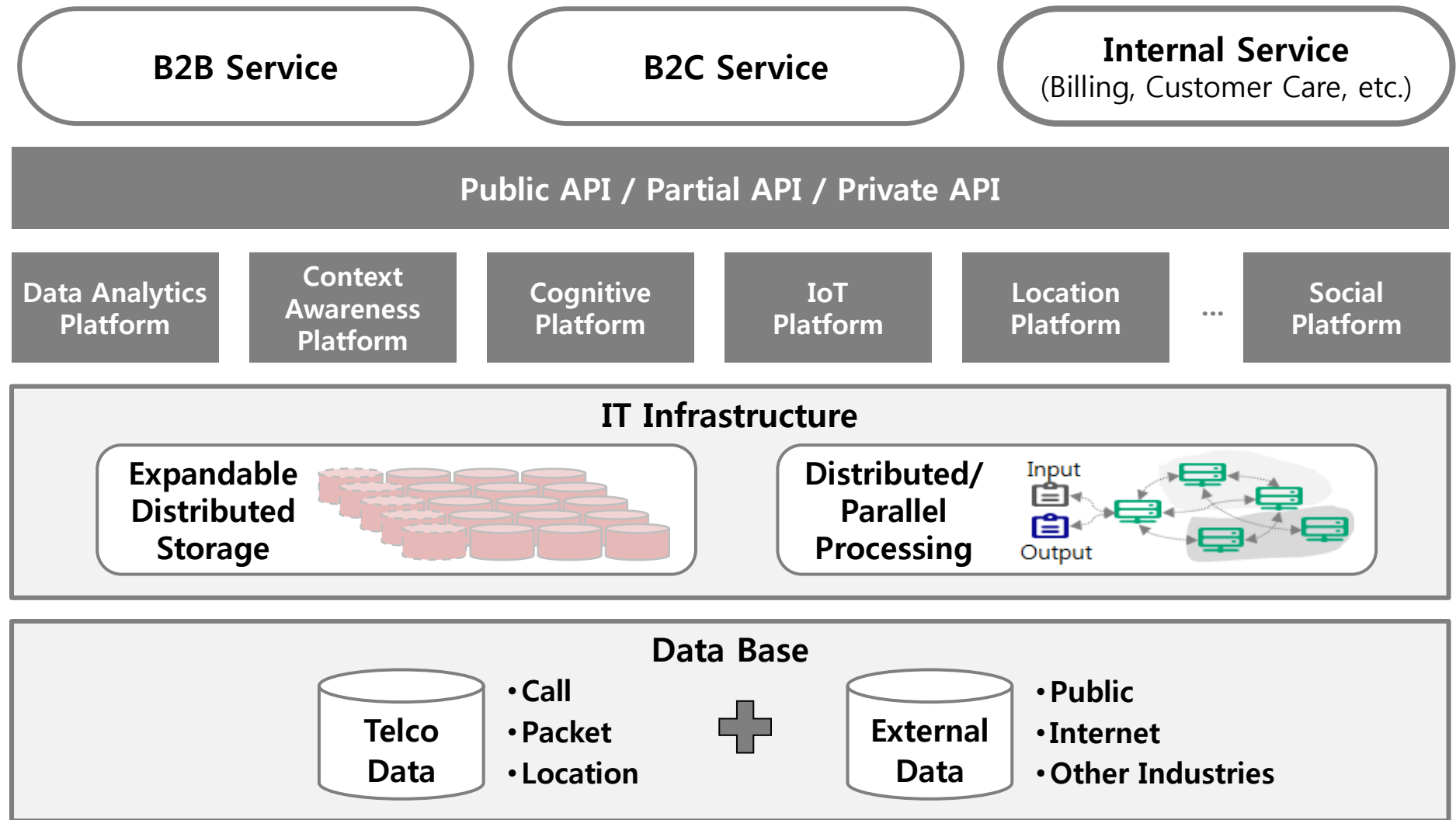
【 Architecture 】



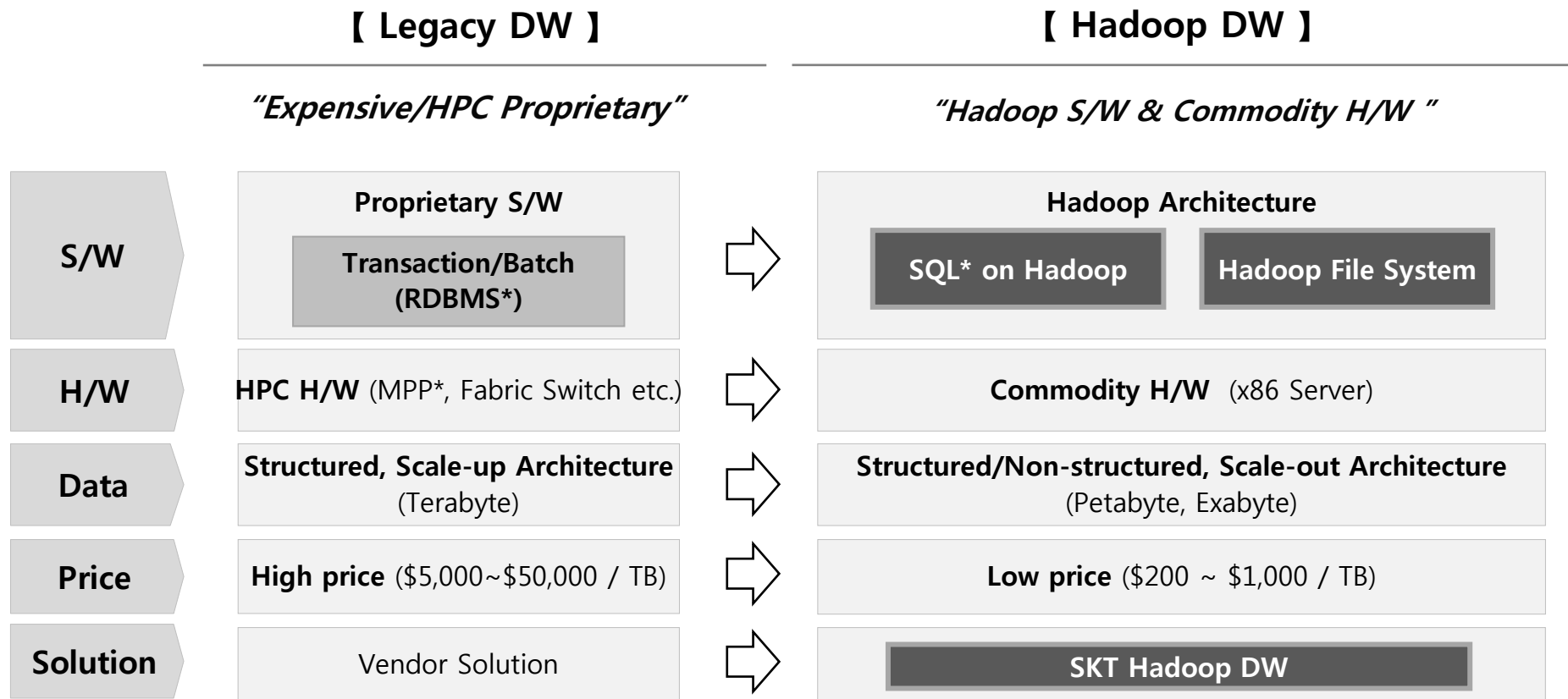
【 Tasks 】



※ IMDG (In-memory Data Grid): Memory based Distributed Data Processing



Telco big data processing using Hadoop-based solution



※ **MPP** Massively Parallel Processing, **RDBMS** Relational DB Management System, **SQL** Structured Query Language

Monthly forum for developers to share knowledge & information

About T Dev Forum

Representative event that SKT makes the ICT ecosystem with biz partners and developers by showing our future plan in advance and giving the opportunity to join our community

2012.07 / 1st Forum Started

2014.10 / 24th Forum : T API

- T developers & T API
- WebRTC, T-AR API Usecase
- SKT API Strategy & Roadmap



2014.12 / 26th Forum : SDDC

- SKT SDDC R&D strategy
- DC Virtualization & SDDC
- For Programmable DC N/W infra



27th T Dev Forum : OpenStack

When

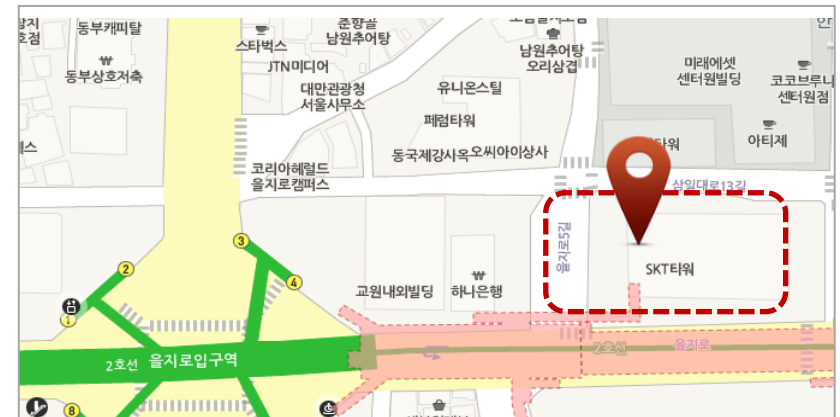
- 2015. 2. 25 (Wed) pm. 1:00 ~ 6:00

Content

- SKT Strategy & Roadmap with SDDC
- SKT DCOS and OpenStack
- Nova and Neutron with perspectives of NFV
- Hybrid Cloud Sol'n and OpenStack Neutron

Where

- SK T-Tower, 65, Eulji-ro, Jung-gu, Seoul
4F SUPEX Hall



Conclusion

- **OpenStack is a foundation technology for our Software-Defined Data Center**
- **Our effort is focused on developing SDN, SDS, DCOS, and Mobile PaaS technologies**
- **We are committed to support OpenStack and Open Source community**





Thank You!