

Open Cloud Reshapes ICT Infrastructures

Tangible benefits for all industries



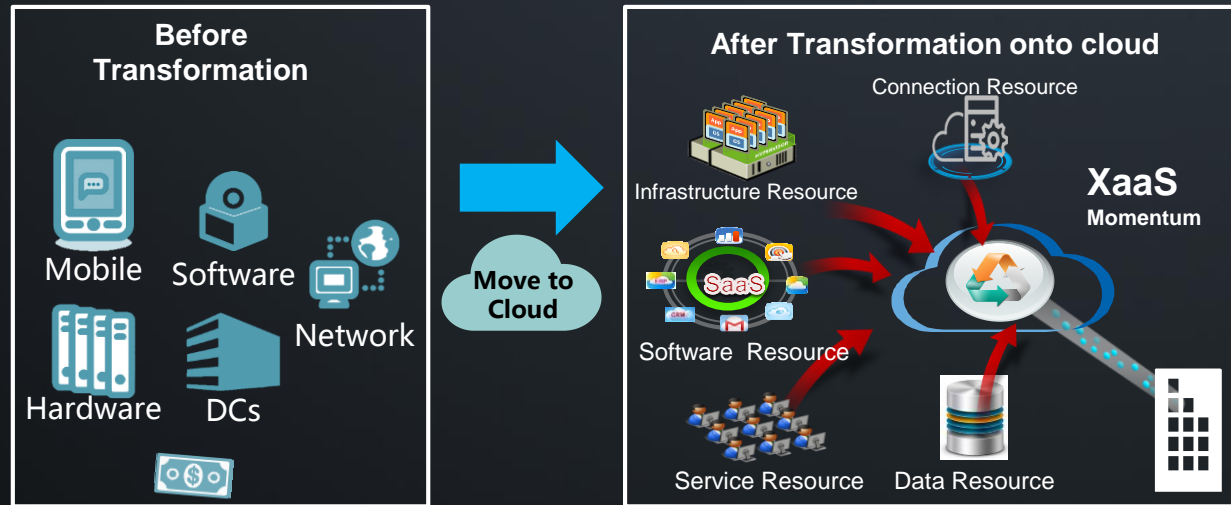
Agenda



1. B2B cloud market insight and Telco's strategy
2. B2B cloud business models and Go-To-Market (GTM)
3. B2B cloud use cases

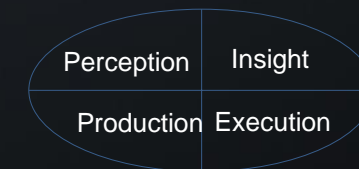
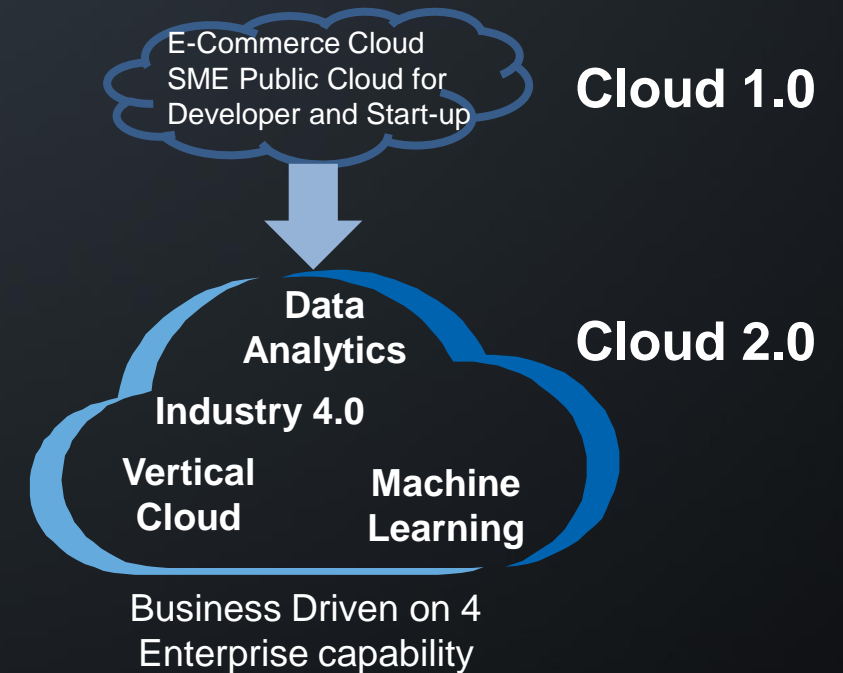
Rise of industry cloud offerings (Cloud 2.0)

Transformation of Vertical Industry



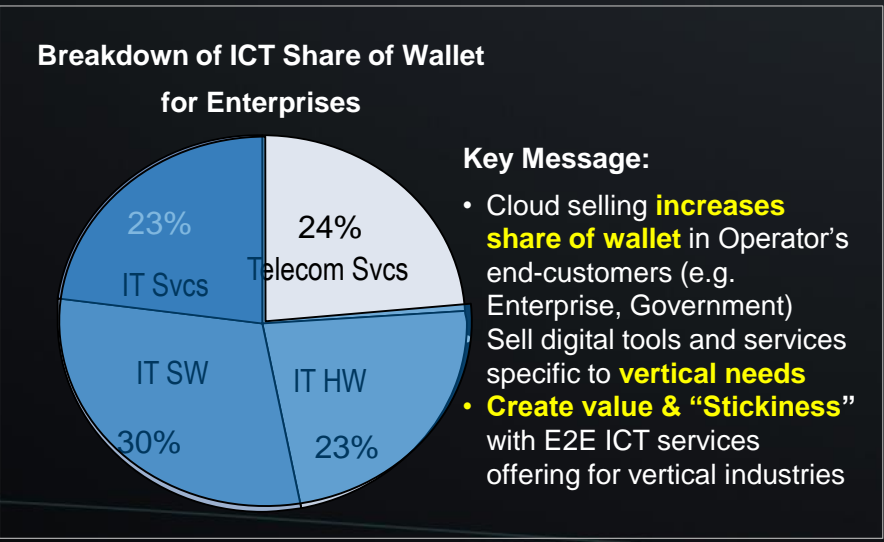
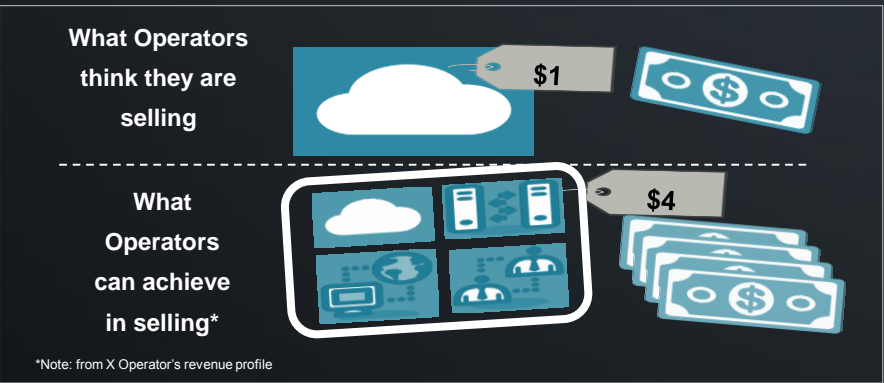
1. Deliver “**business tools**” for industry customers
2. Improve “**business efficiency**” and productivity by adoption of ICT
3. Deploy common industry data on a “**shared platform**”
4. Deliver additional insights through the use of “**analytics**”
5. Replicate across enterprises within the same industry – Enabler of Digital
6. Expand to adjacent verticals and repeat digital enablement cycle

Source: Huawei Analysis

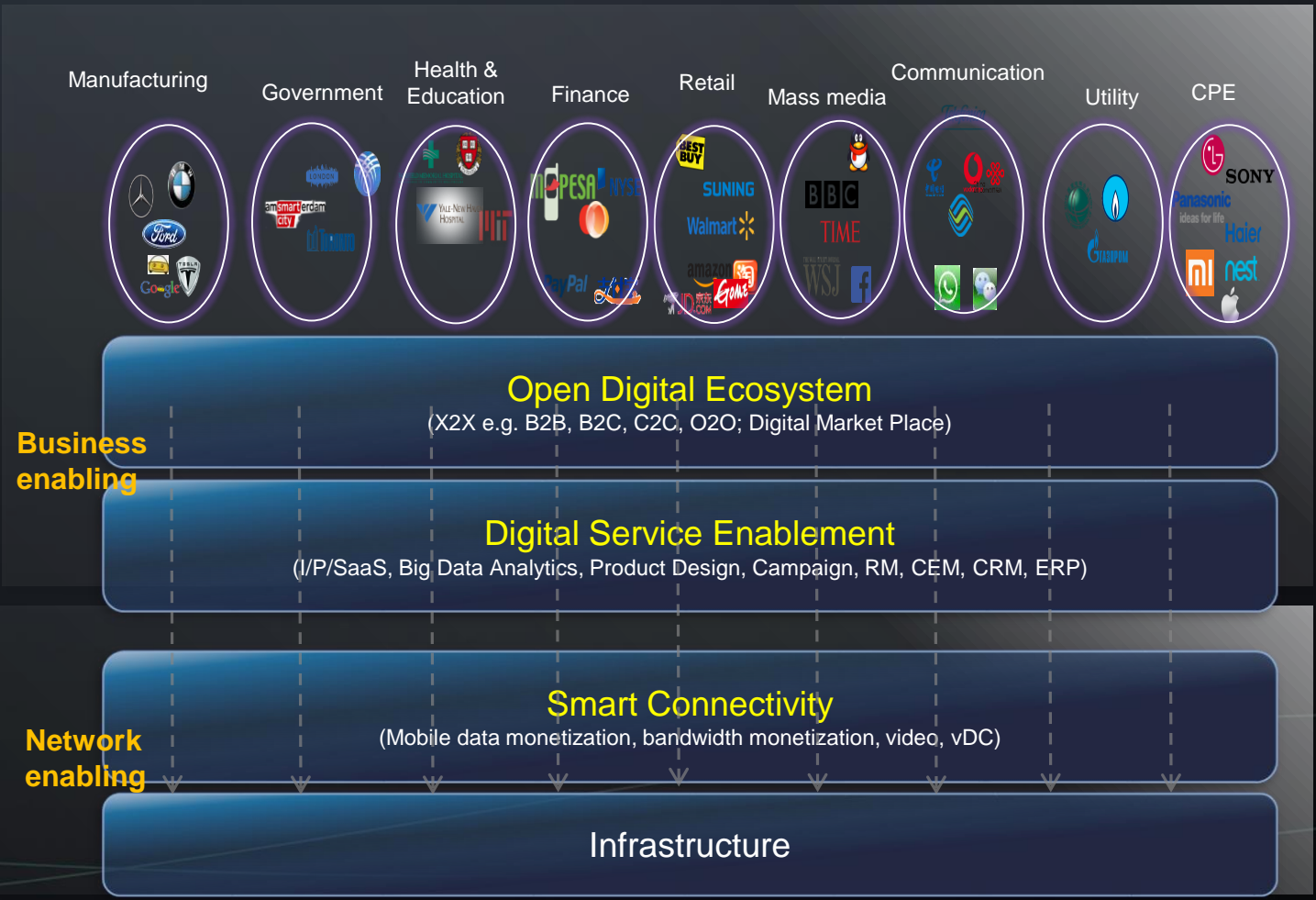


Telcos have to master cloud to become the Digital Enabler to Enterprises

Target Architecture: Everything as a Service



Opportunity to increase In share of wallet due to cloud



Focus area of Telcos B2B

Hybrid cloud, Security, SD-WAN

Hybrid Cloud

Telcos improving their Hybrid Cloud offerings to meet large enterprises and MNC requirements



Enterprise Cloud: 10G security connection between customer DC & NTT DC , CMP multi-Cloud management



Cloud of Clouds: Multi-Cloud connection & integration, orchestrate, collaborate with Cisco, Azure

Security

Global Cybercrime concerns leading to Security services requirements from enterprises growing rapidly



Create a new global line of cyber-security business - Vodafone Enterprise Security Services (VESS)



Provides security solutions across Enterprise, Mobile and Network. Launched a new BU (Magenta) focused on security soln.

SD-WAN

Many Telcos have launched SD-WAN services (with several others announcing plans to launch) to counter threat to traditional MPLS and VPN services



Offers two different types of SD-WAN services, a network-based system and an on-premises based system



Offers “Connect Intelligence IWAN” SD-WAN solution to enterprises

Cloud offerings focused on select industry verticals

differentiator for Telcos from global cloud vendors

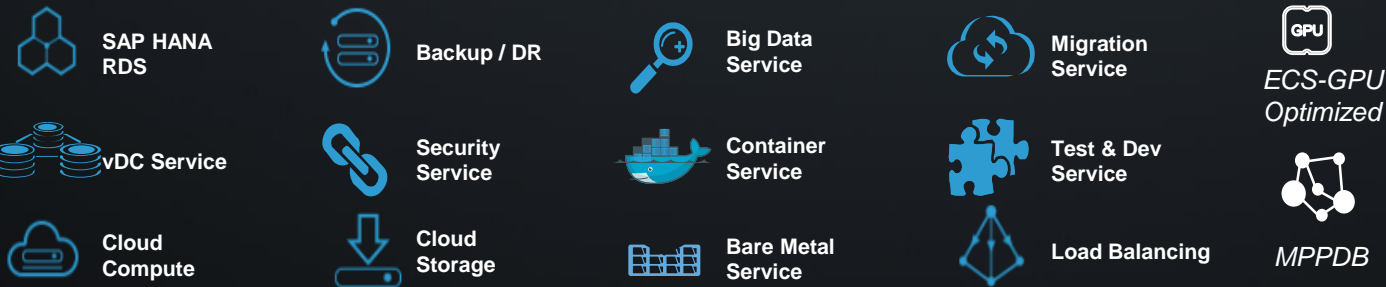
From Generic Cloud Service to Tailored Solution for Enterprise Business Scenarios



Industry Cloud
Industry Unique
Features
Innovations

- Mobile Web Apps
- HPC
- SAP HANA
- Big Data Analysis
- VDI
- Massive Storage
- Archive
- IoT

Horizontal Applications



Abundant Service

Basic Cloud Service
Professional Service



One Platform
Open & Integrated



Connection & Infrastructure

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Building a successful Cloud business

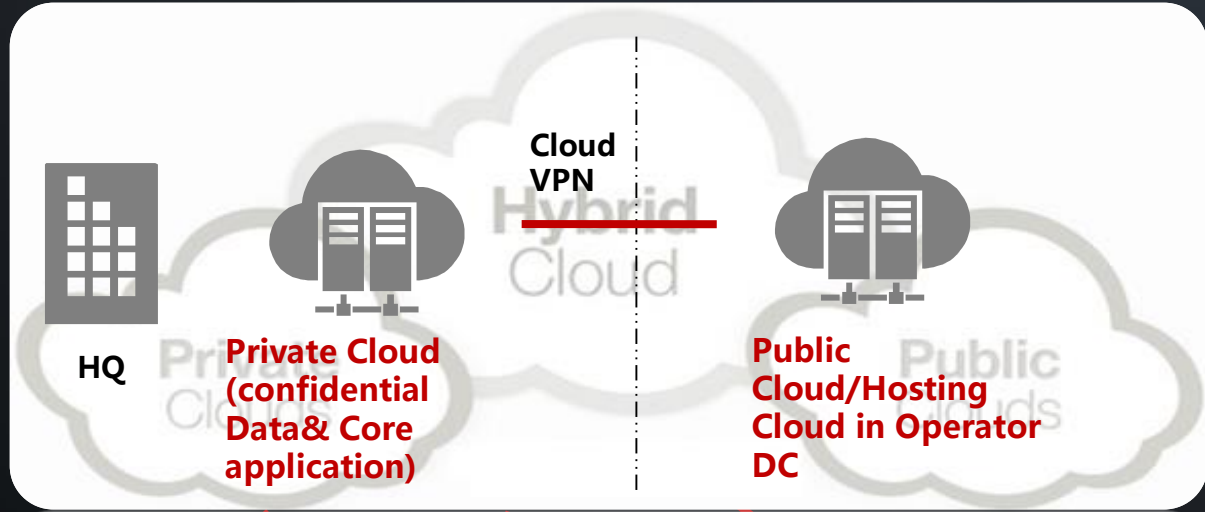
Future Business Model for Cloud

$$\begin{array}{ccccc}
 \$1 & + & \$3 & + & \$N \\
 \text{Cloud} & & \text{Connectivity} & & \text{ICT} \\
 & & + \text{Prof Svcs} & & + \text{Vertical Apps}
 \end{array}$$

- Develop Smart Bundles to build up Cloud revenue base
- Focus on Verticals to grow share of Cloud Services
- Establish Cloud Platform as Foundation of Digital enablement

Telcos bundling hybrid cloud with security and SD-WAN to earn additional revenues

Industry Hybrid Cloud

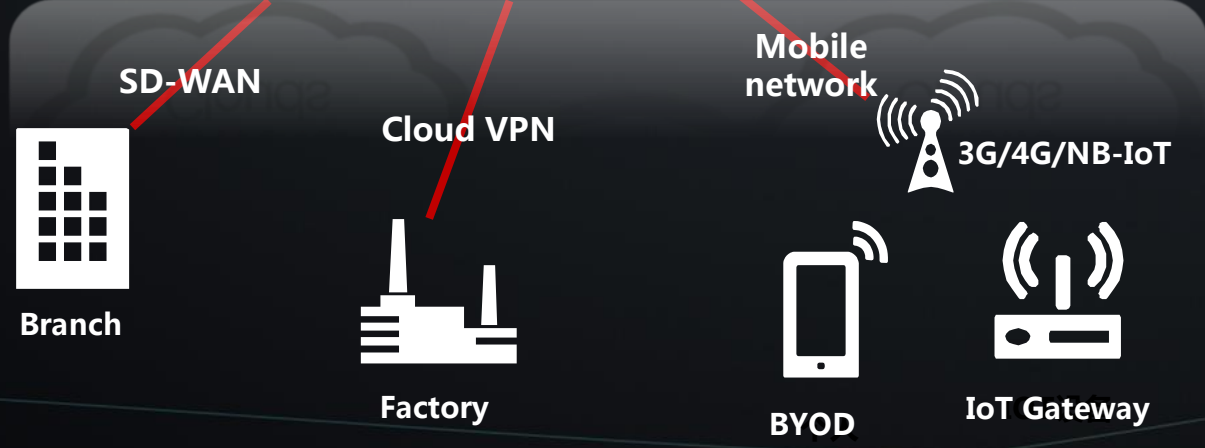


Public Cloud/Hosting Cloud
XaaS revenue

Cloud revenue

Cloud VPN/VAS/Bandwidth as a Service
SD-WAN
IOT Mobile Package
...

Hybrid Cloud additional revenue



- NTT offering Bandwidth on Demand
- Private Cloud
- Public cloud

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Go-To-Market (GTM)

3. **B2B cloud use cases**

A. Video surveillance

B. GIS

C. Healthcare

D. Manufacturing

E. Smart city

F. Government cloud

Cloud Video surveillance: Huawei helped two Telco clients enter into partnerships with solution providers

Challenges

- Loitering outside & in hotel grounds
- Thefts / Break-in
- Customer Disputes
- Video file lost / tampered
- Lack of centralized management
- High CAPEX
- Maintenance overheads

Key Strategies for Retail / Restaurants / Hotels

1. Centralize Management: Video file are stored in Cloud which can be accessed anywhere, anytime
2. Increase security with analytics report
3. Reduce CAPEX and IT maintenance cost by monthly subscription



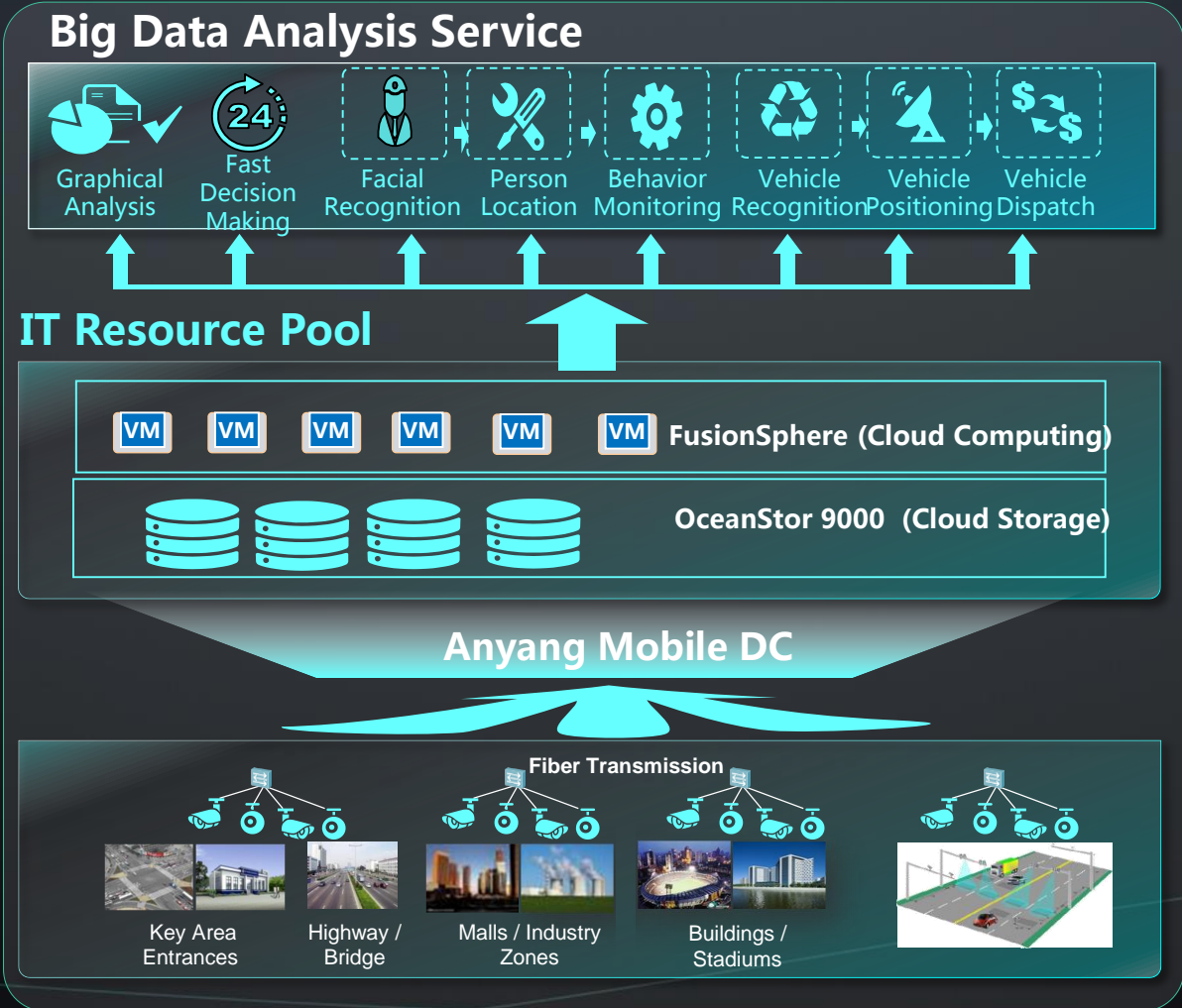
Result/Target

- Under deployment at 2 two leading Operators in South-East Asia
- Operator delivers the cloud video surveillance –
- i. Up-sell more bandwidth & increase customer stickiness (FBB / MBB)
 - ii. Provide “Data as a Service” to Insurance, Logistics, & Security firms
 - iii. New B2B revenue opportunity

Challenges

- Chimney Systems
- Isolated By Different Vendors
- Rapid expansion with stringent requirements (HD Cameras, No Dead Zones, Large Area Network Coverage & Surveillance, Long Storage Period)
- Lack of smart analysis (Inefficiency of Manual Inquiries, Searching Massive Data, Data Dispersion)

Key Strategies for Government



Target

Customer Values

- Service integration**
 - Support Massive Image Data
 - Support Facial Recognition System
- Secure and reliable**
 - Distributed redundancy & DR protection
 - Level 1 to 4 Protection
- Quick expansion**
 - Physical Expansion: ~90 Days
 - Now in Few Hours

Carrier Values

- Cloud Compute Resource**
 - VM: 20+ / Zone
- Cloud Storage**
 - 1PB / Year / Zone
- Quick expansion**
 - +1GB / Year / Zone

Challenges

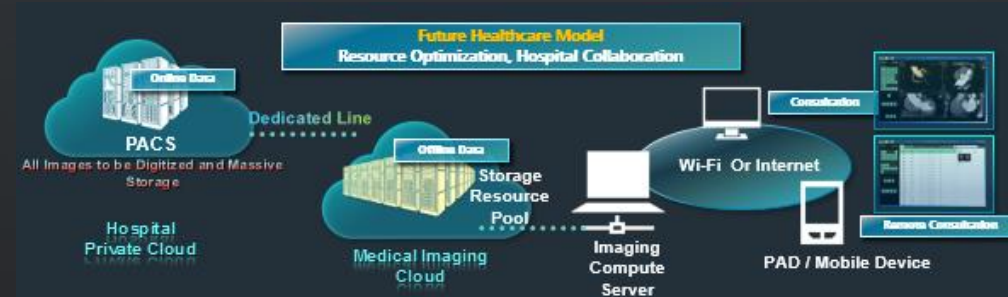
- Secure and reliable image/data access
- Regulatory/policy requirements to be satisfied
- Integration/access across hospitals and health departments
- Lack of Data Analysis

Key Strategies for Healthcare

1. Comprehensive and accessible Image storage and Data Sharing
2. Regulatory/data policy compliance
3. Multi-win Business model for Hospital/Government/Patients
4. Integration with vertical application partners - HIS & PACS(Picture archiving and communication system)

Result / Target

- Telco delivers the Medical Image cloud solution –
- i. Healthcare Imaging Cloud Storage
 - ii. Value Added Professional Imaging Consultation Service
 - iii. Secure VPN Connectivity
 - iv. Medical Ecosystem extended with new services



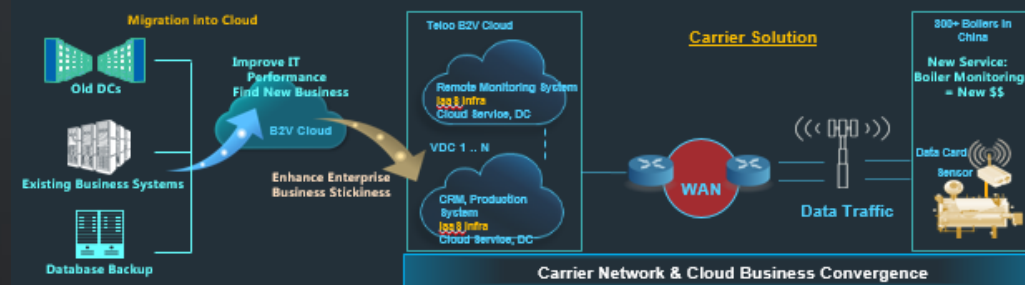
Cloud in Manufacturing

Challenges

- Legacy In-Office IT infra performance and reliability
- Lack of IT expertise and skilled resources
- Silo architectures and high upgrade investment cost
- No Real time data collection and analysis for production process improvement and monitoring

Key Strategies for Manufacturing

1. Digital Transformation – move to common cloud based services and away from Silo solutions
2. Focus on professional local services and Telco-level DC reliability security and performance
3. Exploit IoT capabilities to deliver data in real time
4. End to end ICT solution to enhance productivity (Cloud/VPN/Mobile/IoT gateway)



Result / Target

- Telco offers Cloud solution to Top Boiler Manufacturer –
- i. Agile IT
 - ii. Enhanced Business continuity
 - iii. Secure VPN Connectivity
 - iv. Manufacturing Ecosystem created
 - v. IoT based solution

Challenges

- Silo architectures & implementations by different agencies
- Lack of centralized monitoring platform
- Lack of coordinated emergency response dispatch mechanism
- No Real time data collection and analysis for improvement and monitoring

Key Strategies for Smart Government

1. Leverage cloud based GIS to establish Smart City management platform
2. Establish cloud as the common technology to aggregate silo applications for coordinated urban management, agility and cross agency data sharing
3. Joint innovations to enhance urban livelihood
4. End to end ICT solution to enhance effectiveness of urban management (Cloud/VPN/Mobile/IoT gateway/Big Data)



Result / Target

- Telco operates Smart City platform –
- i. Coordinated emergency response management
 - ii. Urban infrastructure management platform
 - iii. Innovation platform based on analytics

Challenges

Alignment with China Government Policy

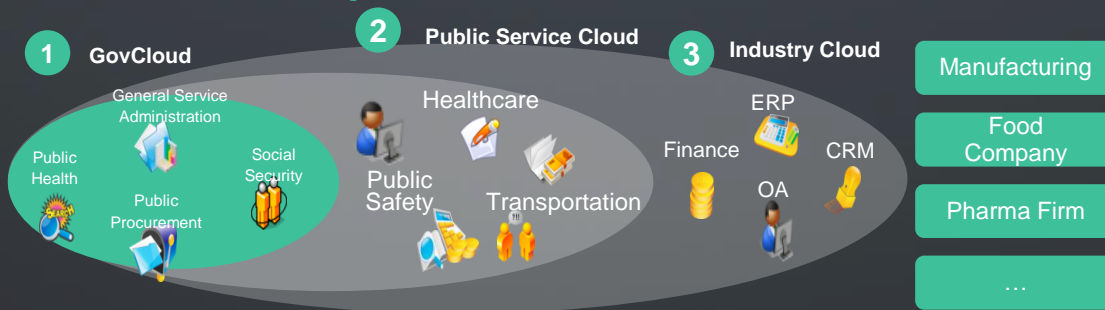
- Cloudification of Civil Service
- Minimize self-built DC
- Enhance Cloud Computing Services model
- Drive Cloud industry development

Data must be stored at its own city

Lack of IT department at Government side

Key Strategies for Government Cloud

Service Roadmap



Key Features

- | | | | |
|--|--|---|---|
|
Solution Architecture |
Deployment Model |
Policy Support |
Management Model |
| <ul style="list-style-type: none">• 1+4 : One Center & Four Platforms• Open, Department business driven | <ul style="list-style-type: none">• Centralized Cloud services acquisition• Pay on actual usage | <ul style="list-style-type: none">• Aligning the Province level E-Civil Service Policy• Aligning the E-Civil Services Policy of City | <ul style="list-style-type: none">• One Cloud in each city• Integration of Unification & Diversification |

Result / Target

An Asian Country

Realize smart internal business and external services

- Smart Management
- Smart Services
- Smart Decision



Thank You.

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