Unified Domain Center

A *Bridge to 5G Profitability*

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Example of Verticals Benefiting from 5G

- Transportation
  - Autonomous Vehicles
  - Automotive

- IOT

- Augmented Reality
  - Virtual Reality

- Smart City
  - Traffic Management
  - Emergency Communications

- Manufacturing
  - Robotics

- Tactile Internet

- Health
  - Fitness & Healthcare

- Smart grid
  - Utilities

- Government

- Smart Office

A study prepared for the European Commission
WHICH OF THE FOLLOWING ARE THE KEY BENEFITS OF 5G TO THE SERVICE PROVIDERS?

Source: TelecomTV 5G Evolution Survey 2018
Question: If you could extend your enterprise network policies across SP cellular network, what would be the top 2 services that you would pay a premium for (for your enterprise mobile and IoT endpoints)?

**Survey Results**

**Sources of New Operator Revenues For 5G**

**Question:** Where will new operator revenues in 5G come from? Global results

- **Enterprises (e.g. B2B, B2B2C):**
  - Most Important: 2
  - 69%
  - 20%
  - 6%
  - 6%
  - 3%

- **Consumer (e.g. B2C):**
  - Most Important: 2
  - 23%
  - 31%
  - 34%
  - 9%
  - 3%

- **Online (e.g. A2P):**
  - Most Important: 2
  - 17%
  - 17%
  - 40%
  - 17%
  - 9%

- **Governments (e.g. B2G, B2G2C):**
  - Most Important: 2
  - 14%
  - 26%
  - 40%
  - 17%
  - 3%

Source: GSA & Survey of Operators
What the Enterprise Wants?

- Control – Visibility – Secure
- Build versus managed service
- Easy and flexible management everywhere
- Enablement to use the Mobile-WAN like their LAN

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Intent-based wireless with Cisco DNA

Extend the Enterprise Experience

Consistent end-to-end experience for QoS, Security, Policy and Assurance

DNA-C/SDN Controller

Open API’s

Controller (UDC)

Enterprise Network

Mobile Network (EPC)

Fabric SDA

Cloud Services

Mobile Network (RAN)

WAN

Wireless SDA

3GPP QoS (PCF/Slice)

Wi-Fi / CBRS Access

Enterprise Network

Device Ecosystem

Vantage Plus

SP Network

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Extending Enterprise Intent Based Networking

The service provider benefits from increased customer satisfaction, loyalty, and new revenues while integrity of the network is preserved.

The enterprise deploys 5G services as an extension of their own network and accelerates digitization strategies for productivity and growth.

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Unique Capabilities in Mobile Networks Critical to Enterprise Business 4G Evolving to 5G

- Mobility Specific Security
- QOE Priority & Control
- Multi Access Identity MGMT: Billing & Massive Data MGMT
- Policy Setting, Enforcement, & Assurance
- Mobile Service Grouping (Private Mobility Network)
- Smart Cloud & SLA based Slice Selection
Examples of Unified Domain Center Value

- Click to edit Master text styles

**Second level**
- Manufacturing
  - Third level
    - Fourth level
      - Fifth level

**Third level**
- Healthcare

**Fourth level**
- Retail
  - Augmented reality enables customer experience
    - Associate enablement connected tools
      - Personalized customer messaging & notification

**Industrial Sites**
- Dedicated Low Latency priority traffic routing for Industrial control systems
  - Emergency communication policies
    - Automated remote monitoring

**Transportation**
- Asset management & tracking
  - Communication services for remote work
    - Automated dispatch services

**Public Sector**
- Collaboration services for inter-agencies
  - environmental safety & emergency mobile services
    - Communication services for public safety
Unified Domain Center features for Service Providers

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-tenant software platform</td>
<td>Enables enterprise to tailor use cases</td>
</tr>
<tr>
<td>Enables MNO control of time-to-market and feature differentiations</td>
<td>Provides MNO control of time-to-market and feature differentiations</td>
</tr>
<tr>
<td>Protects MNO network functions via verification of enterprise changes</td>
<td>Protects MNO network functions via verification of enterprise changes</td>
</tr>
<tr>
<td>Leverages 4G and 5G functions</td>
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</tr>
<tr>
<td>Open APIs offer enterprises different capabilities as a service (NaaS)</td>
<td>Open APIs offer enterprises different capabilities as a service (NaaS)</td>
</tr>
<tr>
<td>Verification and protection of core functions</td>
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</tr>
<tr>
<td>Create valuable information through advanced analytics and processing</td>
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</tr>
<tr>
<td>Charging &amp; auditing functions for monetization and support</td>
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</tr>
</tbody>
</table>

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Customizable Policy

**Enterprise**

**Conditions**
- Location
- Home/roaming
- Application
- Time of day
- Device type

**Actions**
- Blocking
- Redirecting
- Reporting
- Throttle
- QoS
- Usage monitoring
- Notification

**Assurance**
- Connection
- Location
- App usage
- Roaming
- Policy (applied)
- Audit
Summary

• Facilitates Partnership between SP & Enterprise for implementation of the enterprises’ 4G/5G use case
• Provide capability to monetize imbedded capabilities of Mobile network
• Extends control of enterprise into mobile network
• Race to 5G network transformation magnifies the need for differentiation services
• Very low risk implementation (Flexible business models)
• Flexible and Optional deployment models
• Cisco strength in enterprise market uniquely differentiate our offering

Unified Domain Center, A Bridge to 5G Profitability
Cisco 5G Mobility Products:
www.cisco.com/go/mobile

Cisco 5G Thought Leadership:
www.cisco.com/go/5g

eBook – Unified Domain Center:

MWC19 Los Angeles: Cisco Meeting Suite
Show time.
SP Enabled Factory Automation

Enterprise Domain
DNA-C

Enterprise Network

Mobile Operator Network
Unified Domain Center

API
Policy
Assurance
UDC High Level Architecture

Unified Domain Center

MNO Portal
MNO API Manager
Audit Services
Service Manager
DB Manager
Adaptor Services

Enterprise Portal
Enterprise API Manager

Operator Domain

RAN
5G
4G
WiFi

Mobile Core Functions
ULTRA
PCRF
HSS
Other

Orchestration
Billing
Backend
Systems

MNO API

Ent.
API

DNA-C
Security
Analytics
Other Ent. Portals

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Extending Intent-Based Networking

DNA-C
- Multi-Access
- Campus/Branch
- SD-WAN

API
Policy
Assurance

Cisco Unified Domain Center
- Operator Admin Interface
- Customer Admin Portal
- QoE & Optimization
- Data Management
- Rule Manager
- Data Interfaces & Event Processing

RAN
- 5G
- 4G
- WiFi
- ULTRA VPC
- PCRF
- SON
- Other

Enterprise Domain

Operator Domain
Extending Intent-Based Networking

DNA-C
- Multi-Access
- Campus/Branch
- SD-WAN
- Fastlane
- IP QoS
- SD-WAN QoS

Enterprise Domain

API
Policy
Assurance

Cisco Unified Domain Center
- Operator Admin Interface
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- QoE & Optimization
- Data Management
- Rule Manager
- Data Interfaces & Event Processing

RAN
- 5G
- 4G
- WiFi

Mobile Core Functions
- ULTRA VPC
- PCRF
- SON
- Other

Operator Domain
Extending Intent-Based Networking
Extending Intent-Based Networking

Enterprise Domain

DNA-C

Enterprise Network

SP Edge

Mobile Operator Network

Unified Domain Center

API

Policy

Assurance
Welcome, admin

In order to gather Assurance data and calculate your network health, we’ll need to discover or import your network devices.

Overall Health Summary

- **Network Devices**
  - Healthy Devices: --%
  - Last 24 Hours

- **Wireless Clients**
  - Healthy Clients: --%
  - Last 24 Hours

- **Wired Clients**
  - Healthy Clients: --%
  - Last 24 Hours

Network Snapshot

- **Add Sites**
- **Network Devices**
  - As of March 4, 2019 4:42 PM
  - Unclaimed: 0
  - Unprovisioned: 0
  - Unreachable: 0

- **Network Profiles**
  - As of March 4, 2019 4:42 PM
  - 0
Network Topology

- SDN based MNO Network
- NodeB
- eNB
- UPF
- RM
- Wi-Fi Access
- Enterprise Z VPN
- Enterprise Y VPN
- Enterprise X VPN
- Other Operators
- Internet

Ultra Service
- vPC CTRL
- Policy
- SON

Could be deployed in MNO Network Or Cloud Evolve to 5G Service functions
POC Topology
Global Enterprise vertical Spending on Mobility Management

Technologies

- Mobile Application Platform Management
- Mobile Content Management
- Mobile Device Management
- Mobile Telecom Expense Management

Source: Global Data Nov. 2017
Global Enterprise vertical Spending on Mobility
Comm. Services

Category
- Conferencing Services
- Network Services
- Enterprise Fixed Line Services
- Enterprise Mobility Services
- Managed and Hosted IP PBX

Source: Global Data  Nov. 2017