The Industry's Needs

Deliver a digital-first user experience and grow consumer revenues	Expand your media and entertainment business	Provide a superior, automated enterprise service	Transform to an open network and realize 5G	Modernize & accelerate your digital journey
o Capture revenues of the digital & 5G economies	o Build a rich premium content library	o Improve sales and offering processes and P&L visibility	o Better plan & optimize your 5G and fiber rollout	o Reduce TCO & drive efficiency
o Grow loyalty by personalizing care & commerce	o Provide a slick, high-performance targeted viewing experience	o Automate ordering & service delivery	o Virtualize your network for innovation and fast TTM	o Consolidate & transform legacy operations
o Provide a seamless digital experience across all channels	o Monetize content and upsell bundles	o Provide a portfolio of VNFs for connectivity and beyond	o Drive autonomous service operations	o Reskill and retool your organization

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The CSP B2B opportunity
a diverse portfolio of connectivity and beyond
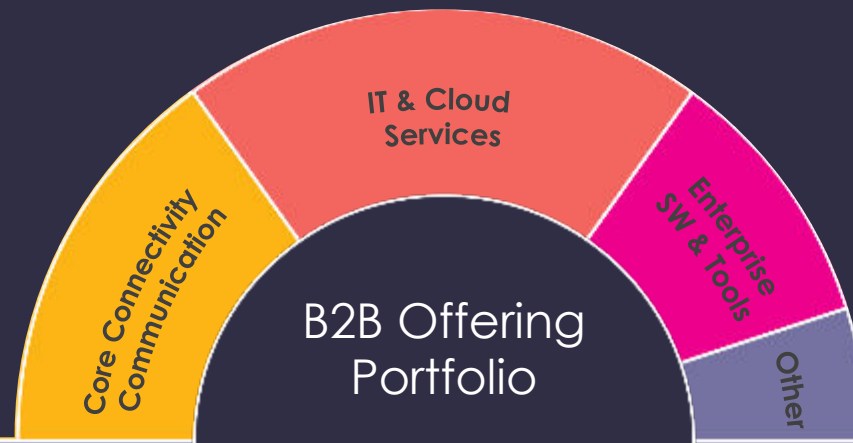
A diverse portfolio of connectivity & beyond

But what to sell should not be "a wheel of fortune"
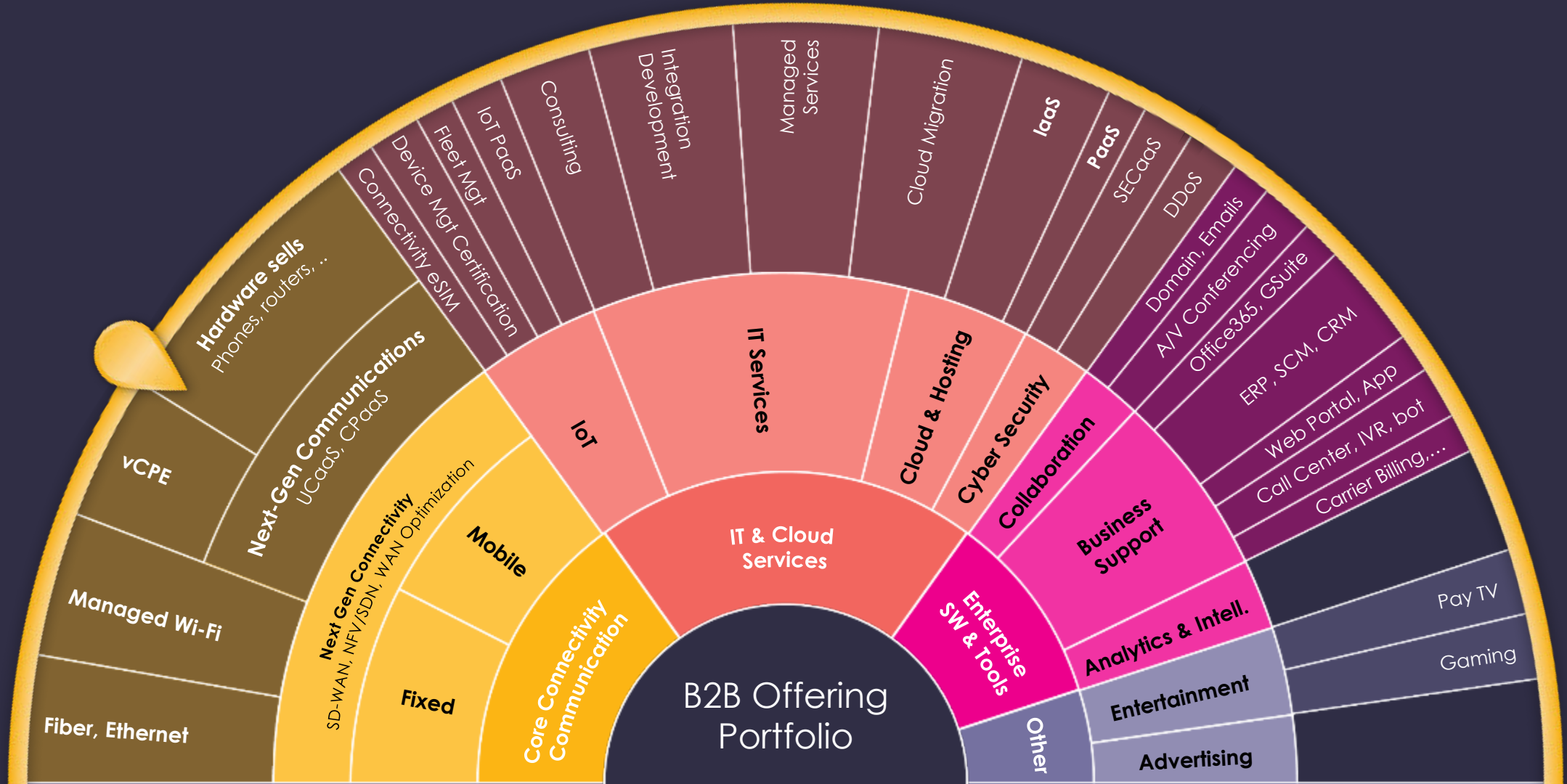
Japan ICT Market to reach $54B by 2022 (IDC)

NG connectivity
SD-WAN, NFV/SDN

Security
Firewall, threat detection

Cloud service
IaaS, PaaS, SaaS

NG communication
UCaaS, CPaaS

Core connectivity
Wireline, mobile

IT services
Outsourcing, HW/SW support

Enterprise software
ERP, SCM, CRM

IoT
Device/data mgmt. operations

$94 M

$9B

$4.5B

$47M

$46B

$55B

$11B

$103B

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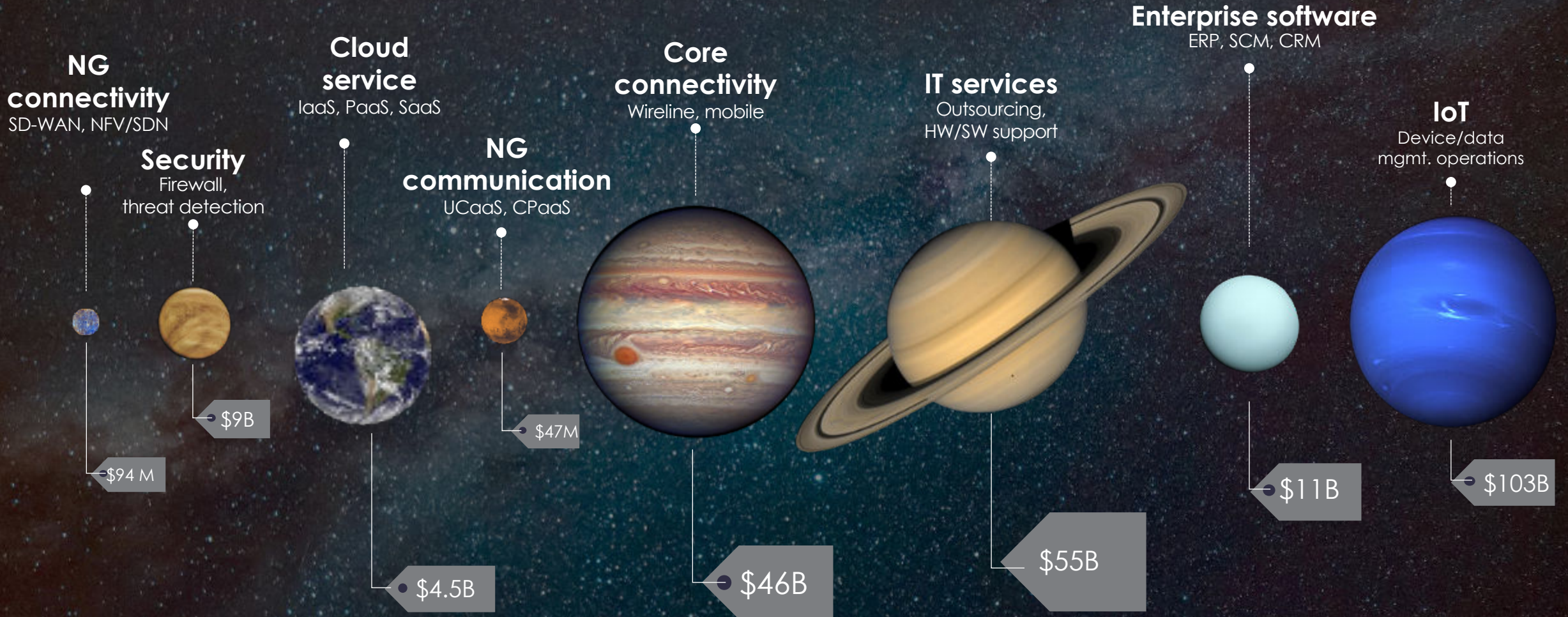
Service providers' enterprise vision

From:

- Traditional networks
- Manual intensive, cumbersome operations
- Connectivity based revenues

To:

- Virtualized connectivity and communications
- Digitized experience & automated operations
- ICT on-top of Connectivity

Sell Smarter , Deliver Faster, Grow Beyond

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The Time is Now
Renewed opportunity to grow beyond core

Virtualizing the network

Proliferation of virtual network functions (VNFs) and related VAS

Network-as-a-Service (NaaS) allows quicker network monetization

Cloudifying the enterprise

Migration of business applications to the public cloud

Business requires high performance environment with "cloud connect" solution

Solutions for the 5G era

Multiple business models with complex partner ecosystem

Vertical industry app integration is the key to 5G enterprise monetization success

IoT & Connected society

Mobilizing vertical industries

Of connected devices

More than connectivity

Artificial intelligence - Automation – Analytics

Key differentiator: SLA-based embedded connectivity

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Virtualizing the network

Virtualizing the network
SD-WAN is here to stay

Enterprises spending on edge routers vs. SD-WAN

75% of WAN infrastructure will use SD-WAN by 2022

US$ Millions

	2018	2019	2020	2021	2022
SD-WAN Equipment	926	1300	1535	1,655	1,779
Branch Office Router	3,592	2,946	2,278	1,724	1,128

- ■ SD-WAN Equipment
- ■ Branch Office Router
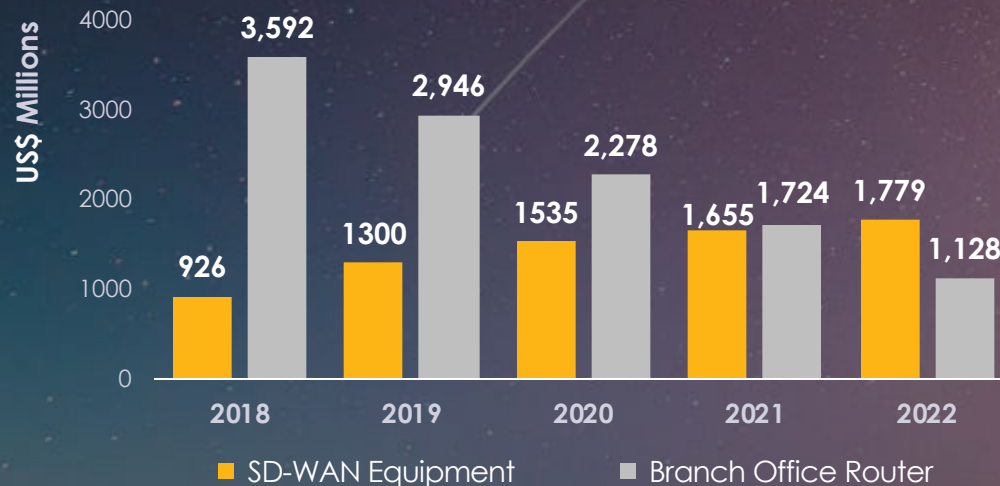
Favourable SD-WAN delivery model

DIY **24%**

40% Managed SD-WAN by CSP (embedded connectivity)

36%

Managed SD-WAN by vendor , OTT or SI

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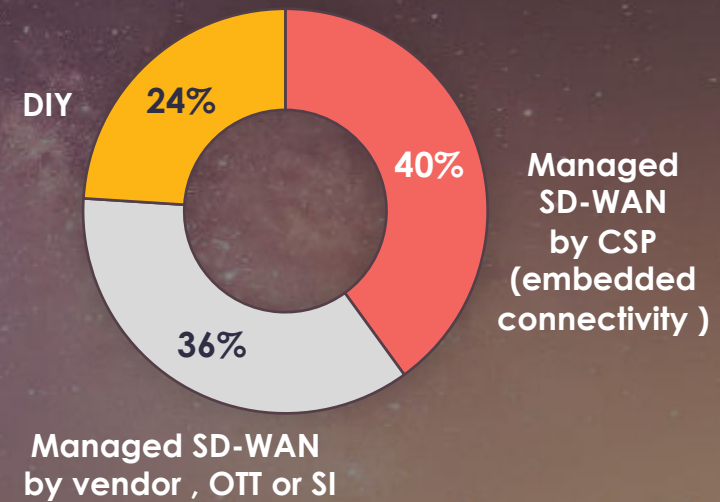
It's time for NaaS (Network as a service)

Connectivity

SD-WAN

Automation

Self service portal

Value-added services

VNF Marketplace

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Virtualizing the network
The NaaS advantages

time-to-market
Service innovation
Business Integration
Operation efficiency
customer experience
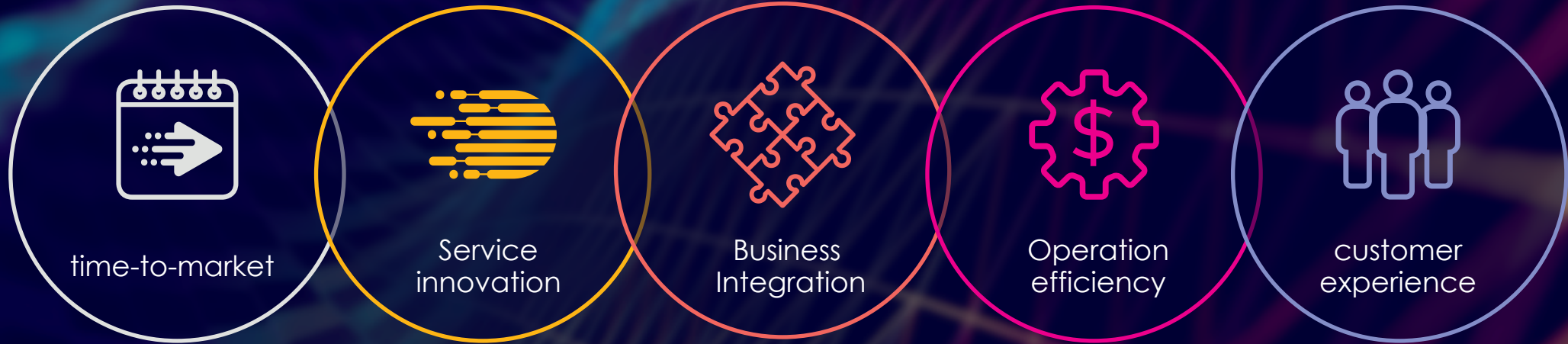
Fast onboarding

time and cost of getting SD-WAN and VNFs into the network

Eliminate siloed platforms

Chain functions to create valuable service bundles

Easy monetization

Integration of SD-WAN platforms with BSS/OSS

Agile operation

Handle SD-WAN service orders quickly and efficiently

Self service

Allow end users to design, customize, and manage virtual services through self service portal

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Cloudifying
the enterprise

Cloudifying the enterprise
SD-WAN Adoption will accelerate enterprise cloudification

All branch offices are connected
over MPLS lines to the HQ

Customer Location 3

Customer Location 2

Customer Location 1

NXT1

T3

T1

Network based firewall

MPLS

Customer Head End

Internet/VIOP (both optional)

Ethernet
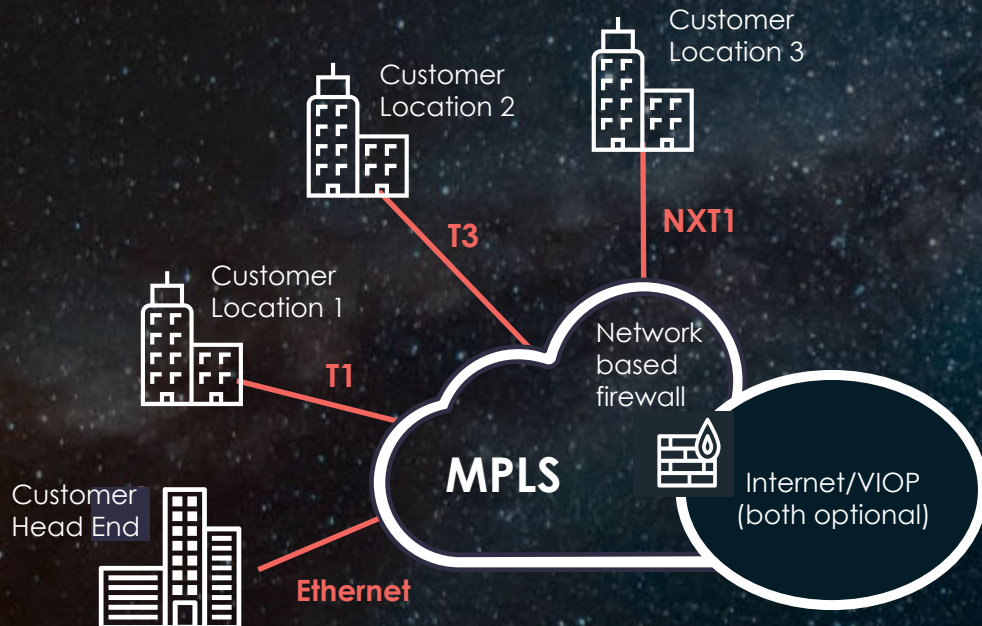
Increased adoption of SaaS and cloud-based services*

* 73 percent of organizations say that "nearly all" their applications will be SaaS by 2020

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Adoption of public cloud is accelerating
Public cloud services global market hits $4.1B in 2022

Enterprises adopt public cloud services to increase their business agility and reduce costs

Legend:
- Infrastructure as a Service (IaaS)
- Physical Facility
- Cloud as a Service
- Platform as a Service (PaaS)
- Software as a Service
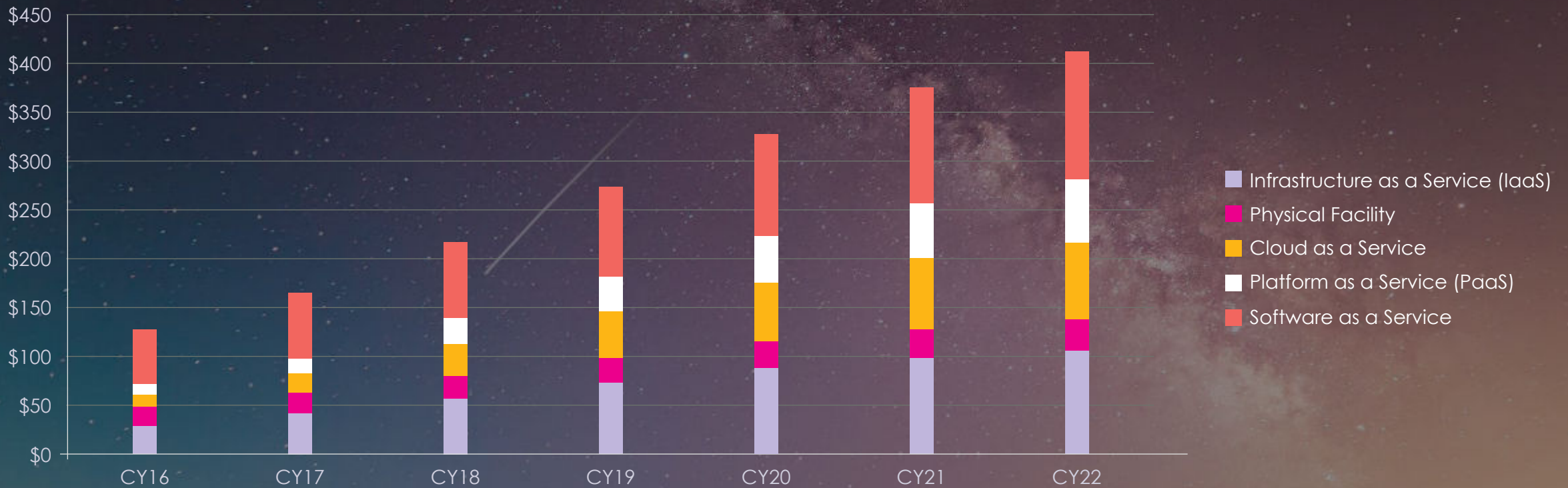
Source: Market Research Future, May 2018

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Service providers role in the journey to cloud

AT&T Business

AT&T business cloud solutions:

"Find the products or services that fits your needs from cloud consulting,
business colocation enterprise recovery services & more"

T Business & Enterprise

"Cloud services consulting, migrations and care"

From **private data centers** to **public cloud**

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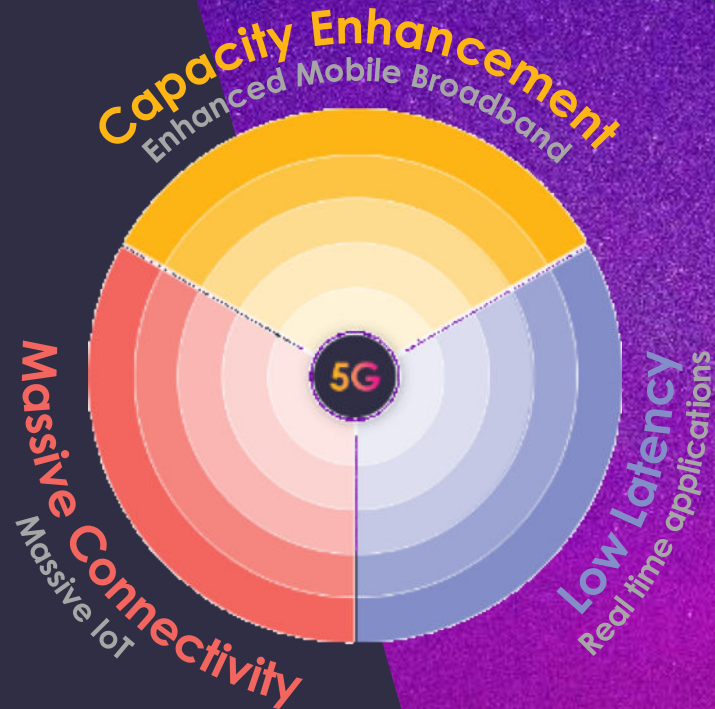
Expectations are high
Key areas CSPs expect to drive growth

5G and IoT have the greatest expectations

Category	Value
Mobile money	13%
Mobile advertisement	13%
Connectivity services - voice, messaging, data	26%
Media and Entertainment	26%
Platform services that connect producers to consumers (via partners)	26%
Enterprise / SME services such as unified communication, SD-WAN etc.	29%
Consumer IoT services	39%
5G network services such as network slicing, network as service	61%
Enterprise IoT services	68%

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Connected event use case

Player Statistics

Merchandise

Camera Angles

Advertising

Realtime Replay

Player Tracking

Augmented Reality

Betting

Ticket Purchase
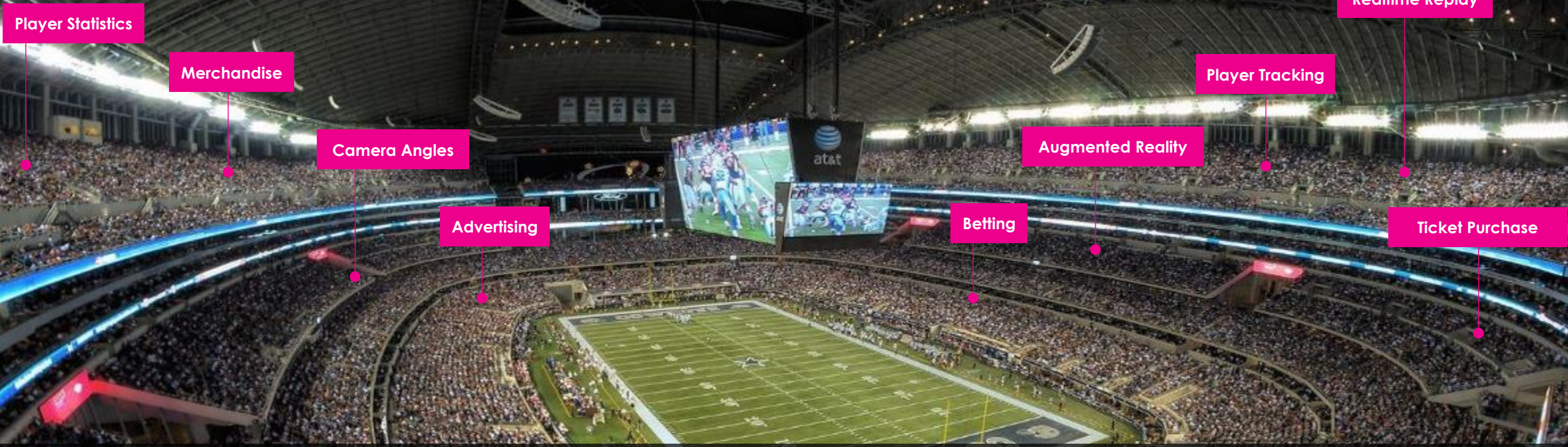
High speed network providing personalised experience to multi mode devices and VIP users

Deploy thousands for antenna, Edge and Core

Edge Computing

Device and subscriber tracking

Network slicing

Dynamic Capacity Management

Beam Steering

Analytics who, when, where

Charge Multi Parties

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IoT & Connected societies

The scale of overall market for IoT
is expected to grow from...

9.30B JPY in 2017 to...

4.04T JPY in 2023

NRI Nomura Research Institute, Ltd

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SMB's are becoming smarter

Energy Management

Video Monitoring

Component
Performance & Failure

Employees access control

Efficiency

Peace of mind

Cost savings

Product quality

Security

Predictive maintenance

Temperature and
Lighting

Customers habits

Room Occupancy
and Usage

Sustainable innovative solutions across all business aspects

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January 4

82 Wi-Fi Customers

7 Electrical Devices

1187 KW Electricity Consumption

6 Staff Members

Recommendations & Alerts

💡 Offer 'New Customer' promotion each Monday at 11AM.

💡 Assign additional 2 waiters and a bus boy to the Jan 5th mid-day shift.

💡 Refrigerator #2 temperature fluctuation -maintenance required!

⚠ Anomaly detected in revenue per # of customers on Friday between 9:00am to 10:00am

⚠ 30% Increase in average electricity consumption on Tuesday and Thursday between 3:00am to 5:0am

⚠ Detection of irregularity in the # of times storeroom was open yesterday between 4:00pm to 6:00 pm

Storeroom Sensor 1

Storeroom Sensor 2

Daily Visitors Distribution vs. Revenue

Jan 01, 12AM   Jan 01, 6AM   Jan 01, 12PM   Jan 01, 6PM   Jan 02, 12AM

● customers ● Revenue Ratio

Predicted Visitors

Jan 01   Jan 03   Jan 05

New Visitors and Returning Visitors by hour

12:00 AM   6:00 AM   12:00 PM   6:00 PM

······· New Visitors   ······· Returning Visitors

Predicted Electricity Consumption

Alert:: abnormal levels predicted

Dec 30, 12AM   Dec 30, 12PM   Dec 31, 12AM

Device Maintenance Heat Map

	12:00...	1:00 ...	2:00 ...	3:00 ...	4:00 ...	5:00 ...	6:00 ...	7:00 ...	8:00 ...	9:00 ...	10:00...	11:00...	12:00...	1:00 ...	2:00 ...	3:00 ...	4:00 ...	5:00 ...	6:00 ...	7:00 ...	8:00 ...	9:00 ...	10:00...	11:00...
coffee 1 e																								
Dishwasher																								
ref 1 e																								
ref 2 e																								
Oven																								
AC																								

0   48   96   144   192   240

Enterprises/ Cities/ Governments

Manufacturing

Financial Services

Security

Energy Utilities

Environmental Monitoring

Monitoring

Automotive

Public Transport & Safety

Retail

Command & control

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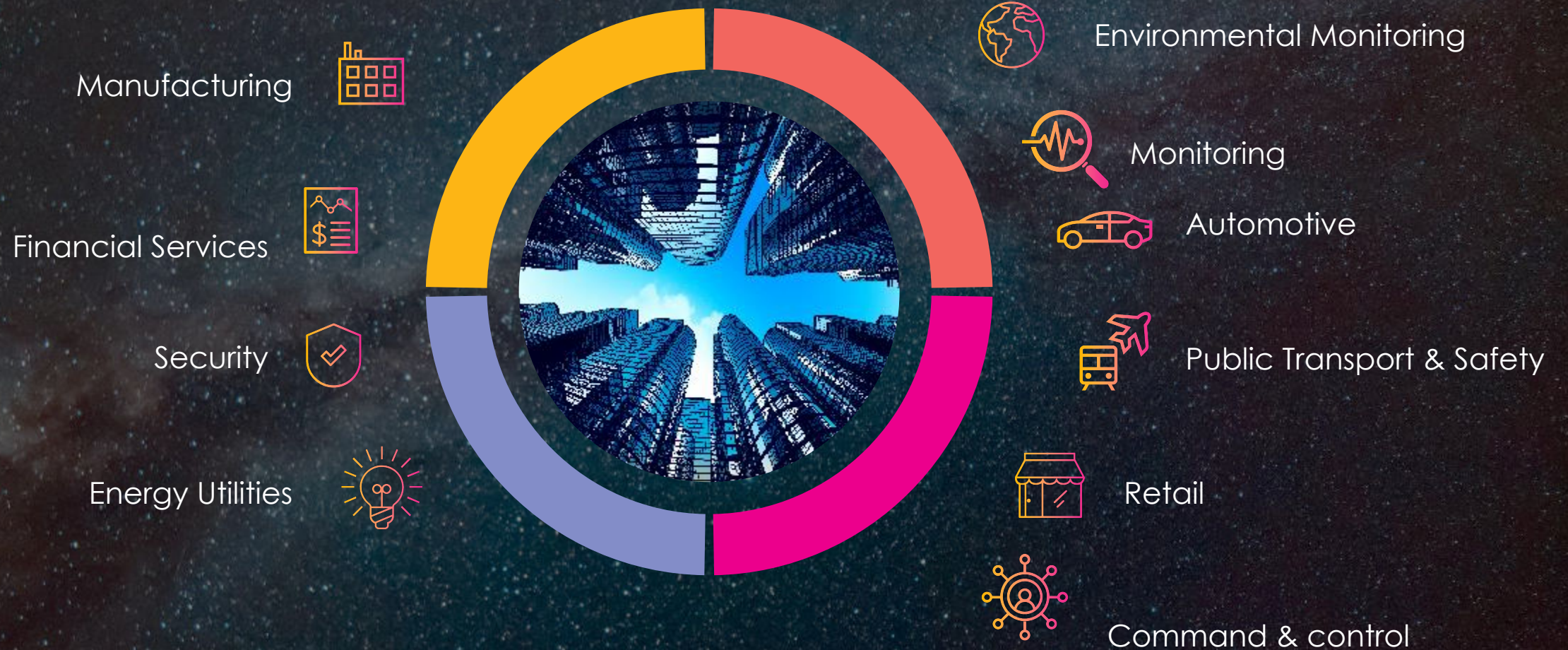
The Time is Now
Everything is connected

**Cloudifying
the enterprise**

**Virtualizing
the network**

**Solutions
for the 5G era**

**IoT & Connected
societies**

Artificial intelligence – Automation – Analytics

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Thank you