Amdocs

From Private Network Strategy to Smart City Realisation

November 2022

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VP Network & Cloud Partner Strategy

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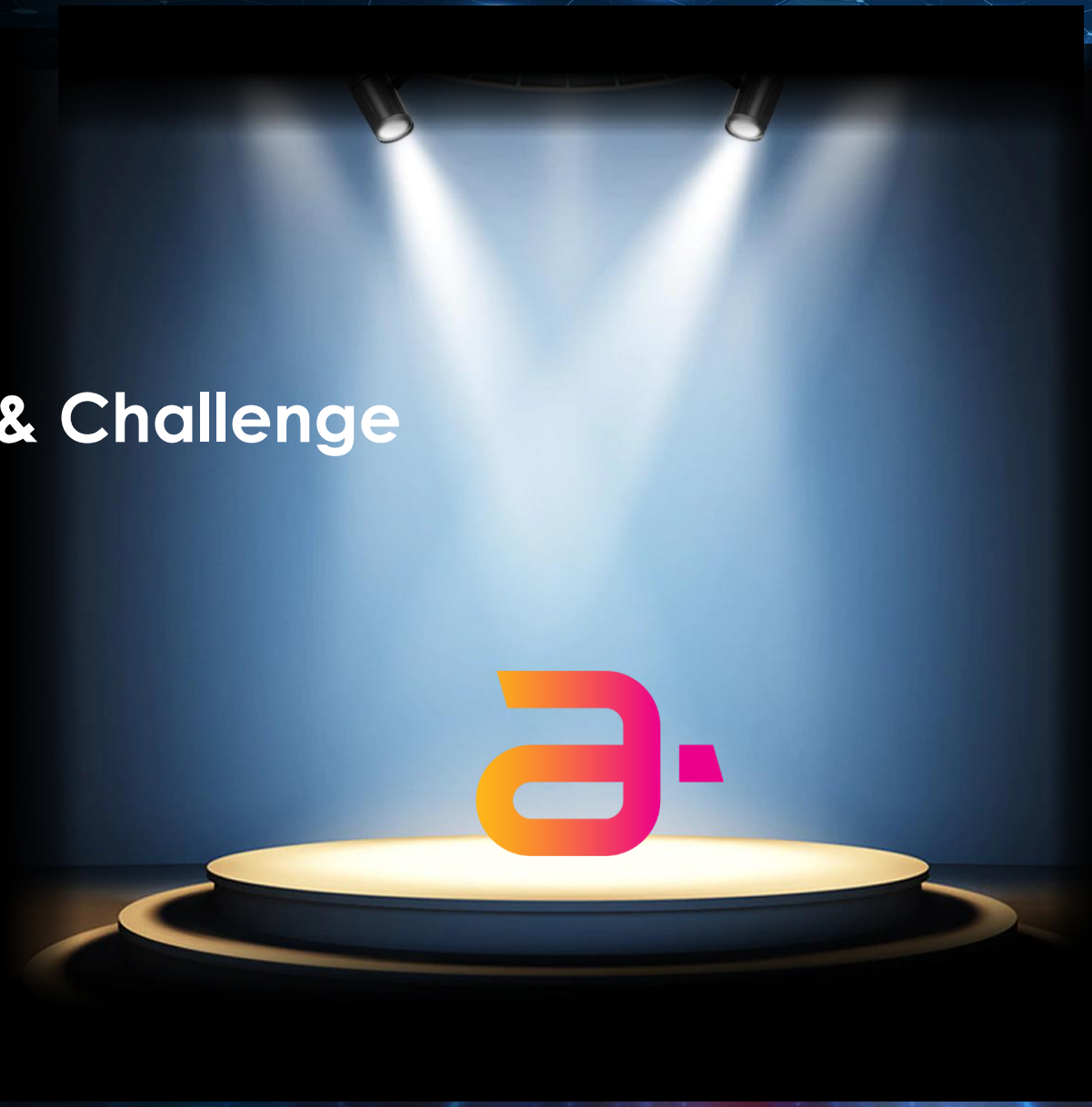
Spotlight areas

- Intro to Amdocs Network
- The Enterprise Opportunity & Challenge
- How we can help
- Our Investment
- Q&A



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Amdocs at a glance

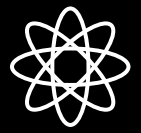
29,000
Employees

$4.3B
FY21 Revenues,
7% YoY[1]

90
Countries

~75%
Recurring revenue

350+ customers
Industry in society's backbone



$1B+ investment
In our next-gen cloud platform

Unique business model
Unparalleled accountability

Industry's best technologies
Driving a leadership position

Committed to sustainability
Dow Jones Sustainability Index

Top workplace for women in India for 2021[2]

1. On a pro forma & constant currency basis. Excludes the financial impact of OpenMarket (which was divested on December 31, 2020) from the current fiscal year and comparable fiscal year and assumes exchange rates in the current period were unchanged from the prior period

2. Indian Economic Times

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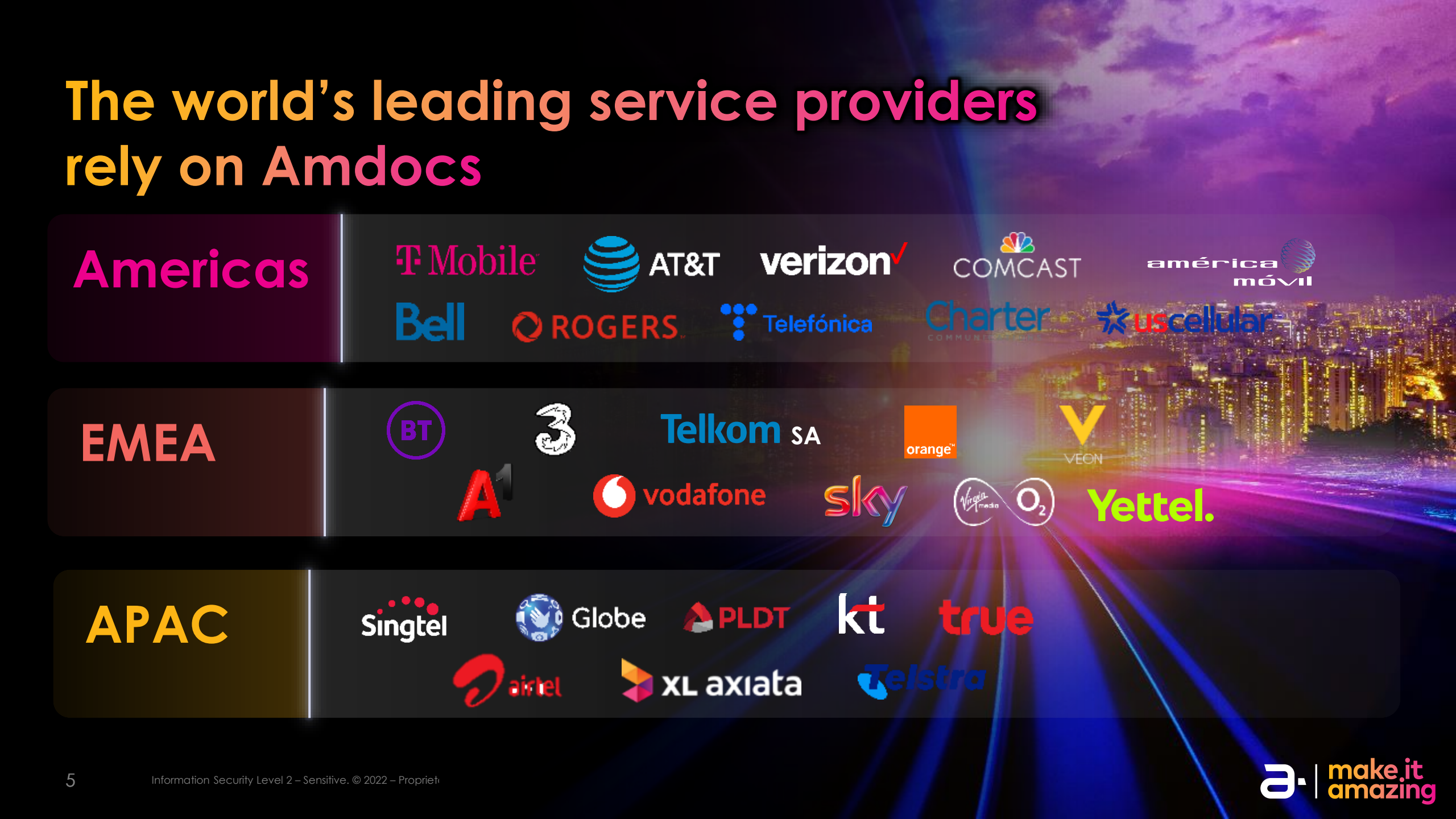
The world's leading service providers rely on Amdocs



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Our platforms enable global experiences at scale

3.1B
People Impacted by Our Platforms

$38b
Subscriptions monetized
Amdocs Subscription

1.7b
Daily digital journeys
Amdocs Commerce

700m
Digital & print bills per/mo
Amdocs Bill Experience

1.5b
Wireless, internet and TV subscribers monetized per/mo
Amdocs Charging

300m
Successful daily customer service interactions
Amdocs Care

600m
Subscribers benefitting from real-time network QoE
Amdocs Policy

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Amdocs Networks Division

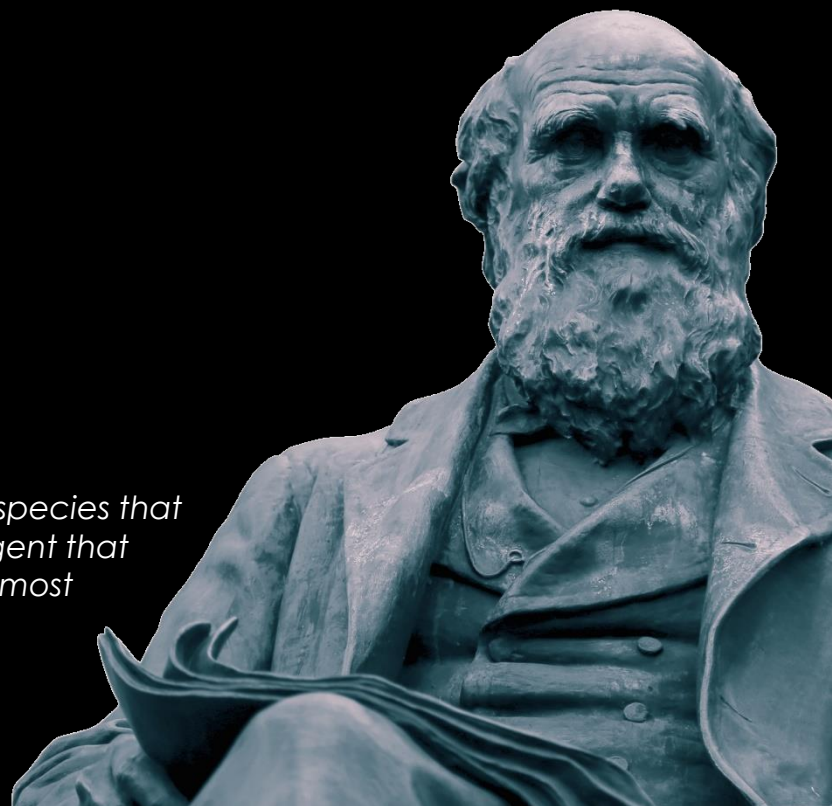
One storefront that brings together disparate network assets

One network story showing end-to-end solution value with partners

A Network Business Unit focused on addressing multi-domain network complexities

Positioning as telco to techco transformation enabler

Mission of Org – extend on our Network credentials - **Combine the in-depth knowledge across multiple domains and partner**s to create holistic solutions addressing key pain points.



> *It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is most adaptable to change.*

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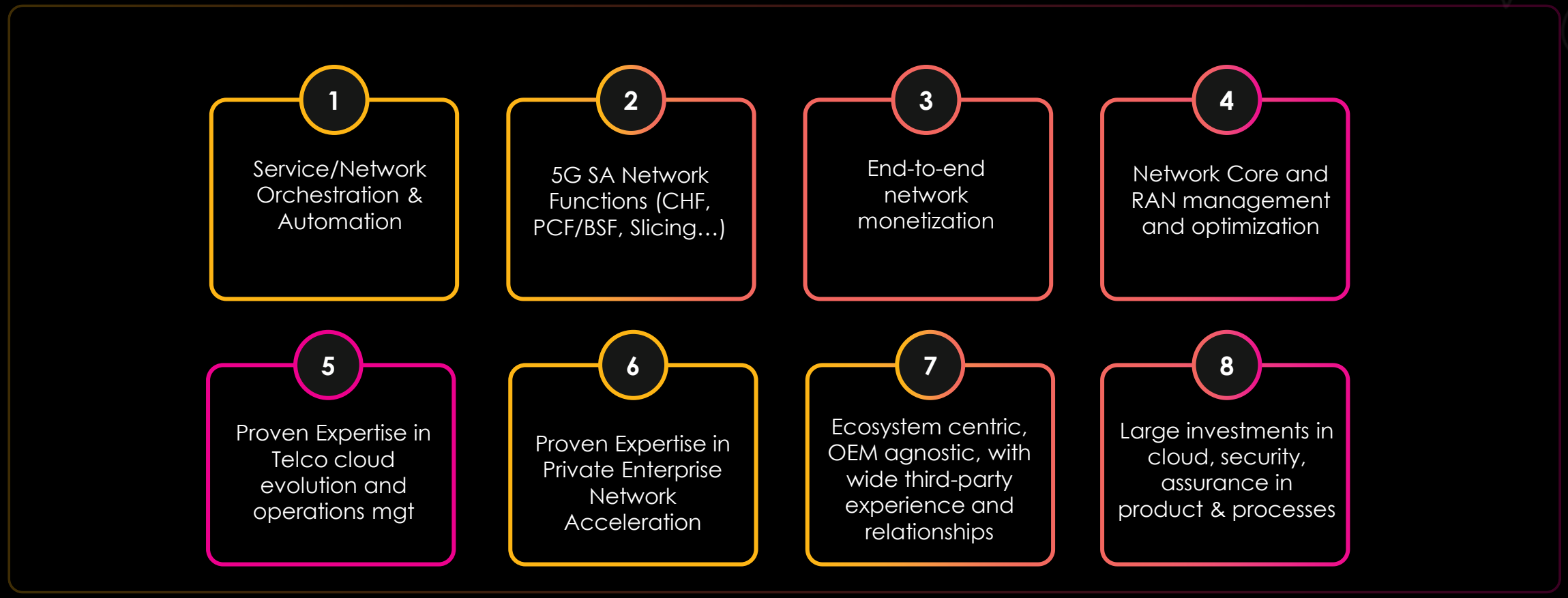
Amdocs – Core Network Competencies

Amdocs Networks offers "asset backed" network solutions and services division. Building on a great legacy in IT domain, we have over 15 years evolved deep network expertise. We believe our differences are:



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The Enterprise opportunity & challenge

From PEN, MEC to Smart Cities….

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The Complexity of Private Networks

DESIGN/ PLANNING

Use case requirements (coverage, capacity, costs)

NETWORK PRODUCTS

RAN, Core, MEC, Analytics
Devices (CPE/EUD)

E2E SYSTEM INTERGRATION/ ROLLOUT

Integrating RAN, Core, MEC, DAS, Transport, ISV partner

SPECTRUM

Licensed/Unlicensed Spectrum

NETWORK/ SERVICE OPS

Consumer, M2M Integrations

SIM/DEVICE MANAGEMENT

NOC, Tier 1/2 Support, Assurance

Leveraging Amdocs Radio, 5G Solutions and Services expertise

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Not All Enterprise needs are the Same

Curated blueprints based on diverse enterprise requirements

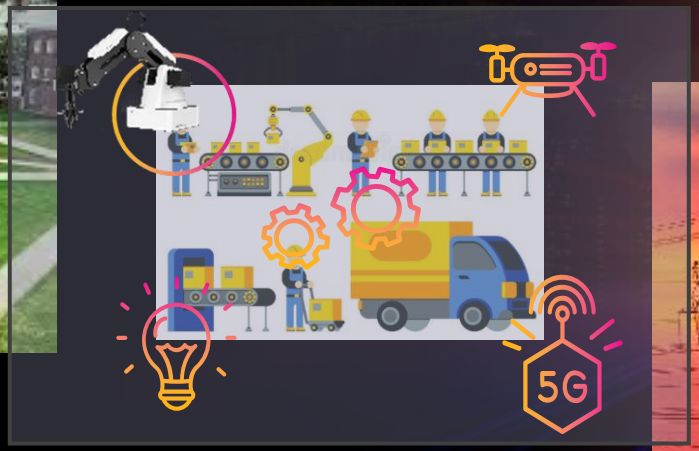
UNIVERSITIES/Schools

USE CASES:

Fixed wireless broadband

Reliable & secure alternative to enterprise Wi-Fi

IR4.0



USE CASES:

Augmented Reality (AR), Advanced Robotics, Internet Of Things (IOT) etc

SmartCity/UTILITIES

USE CASES:

Smart metering aggregation

Distribution automation

Network management

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Sources: CUNY, Northside, Student Energy

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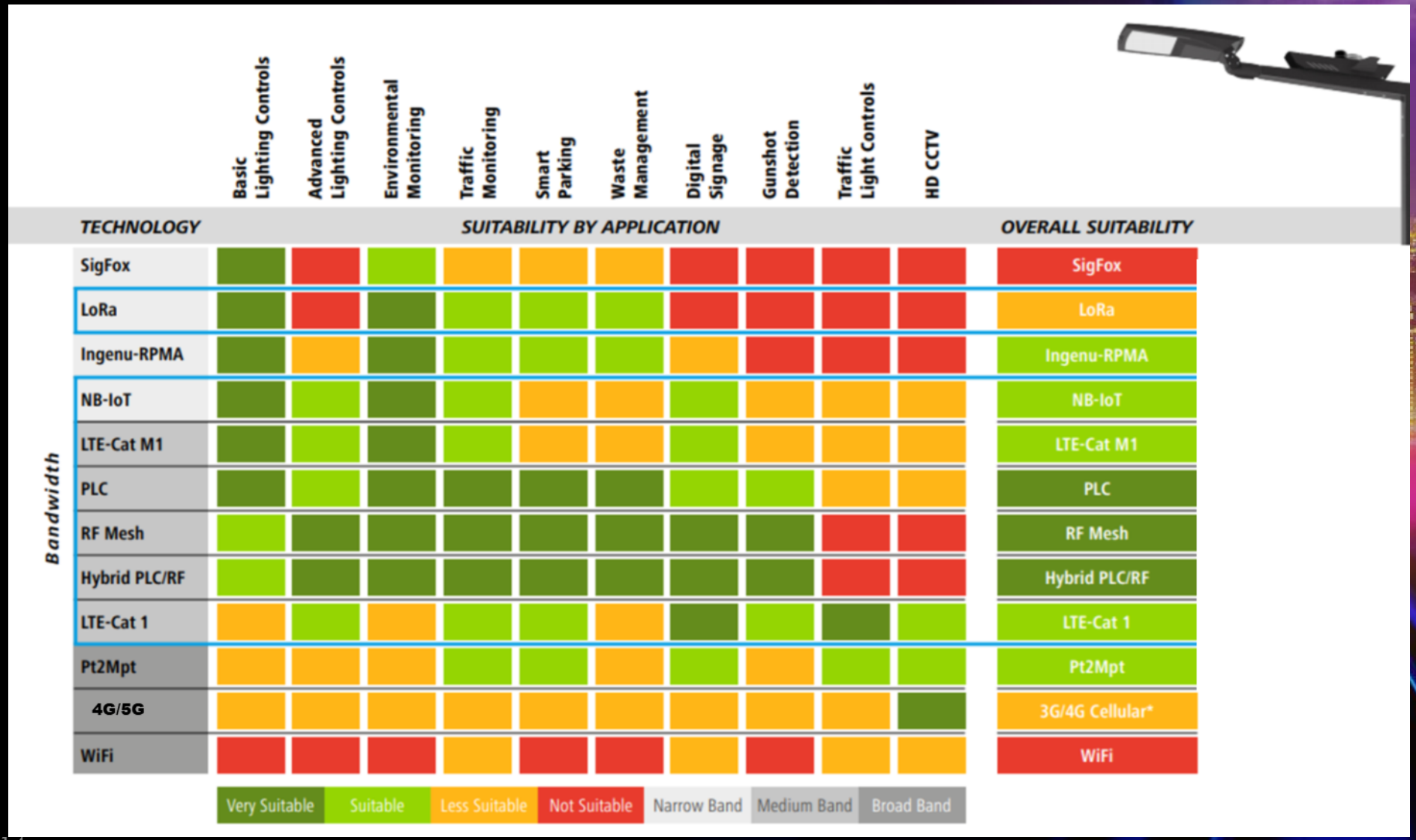
Many different “connectivity” options…



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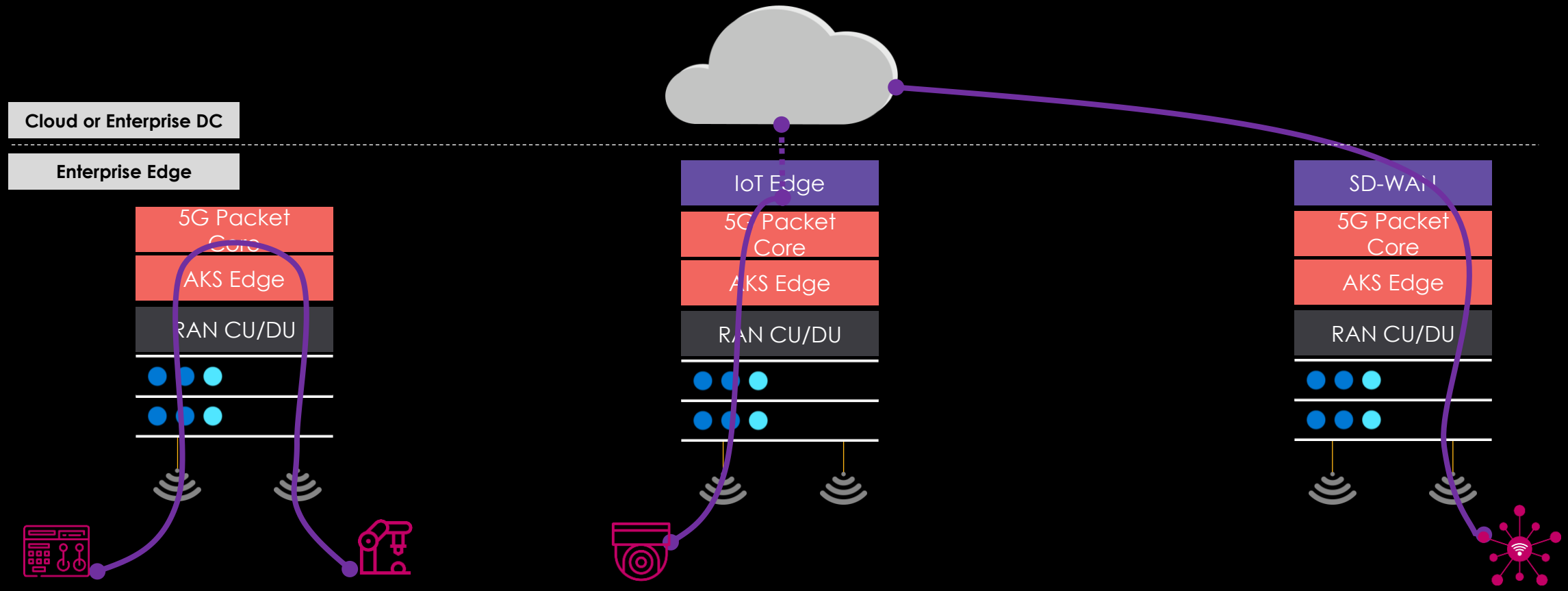
Complexity in Design



M2M Low Latency
Edge routing

Drone AI
Edge processing + Cloud analytics

Massive IoT
Secure cloud collection + processing

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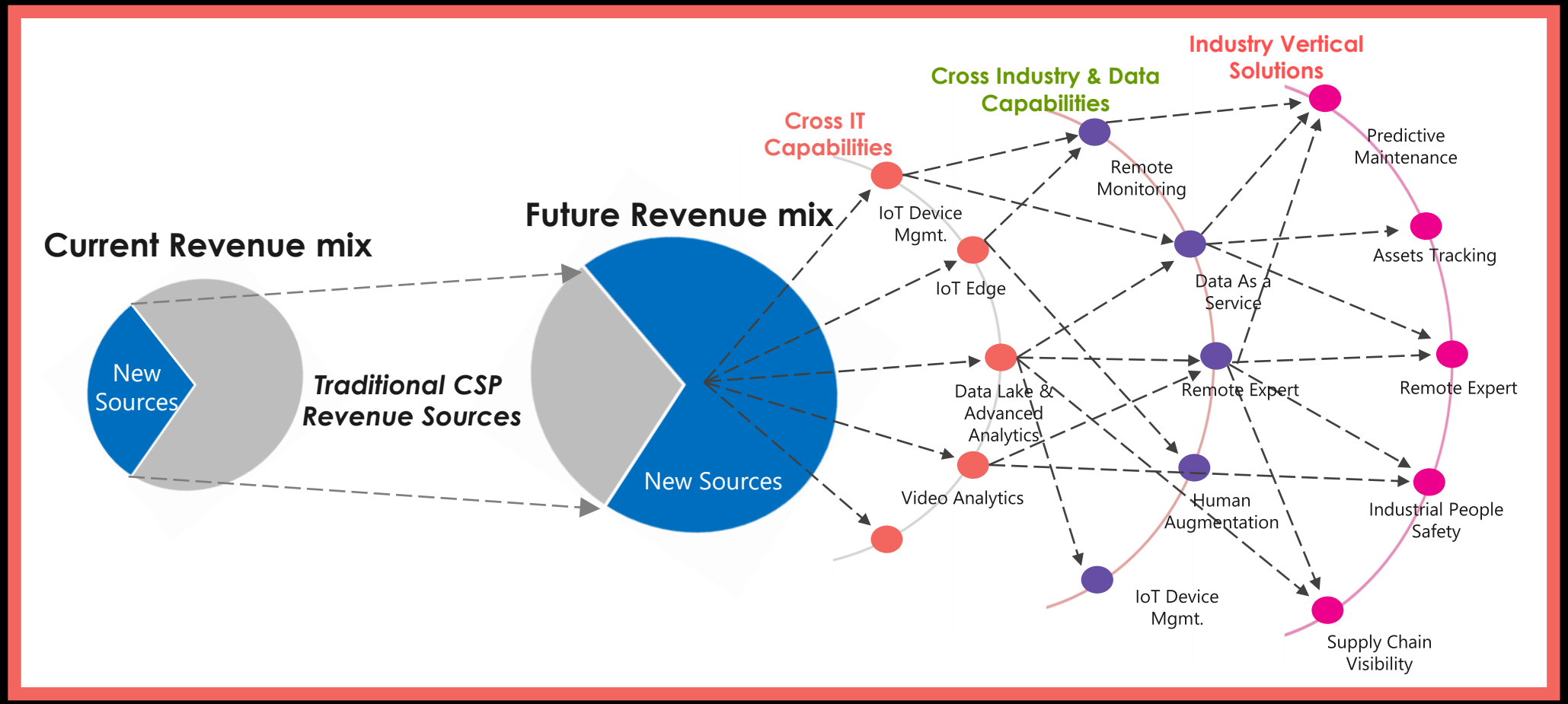
Transformation Shift in Business Model of CSPs

Increasing focus on delivering **Digital Enterprise Services** beyond Connectivity



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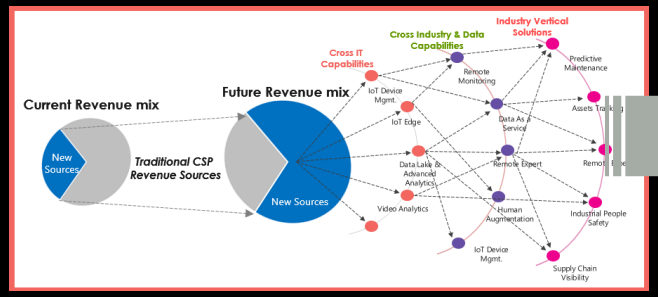
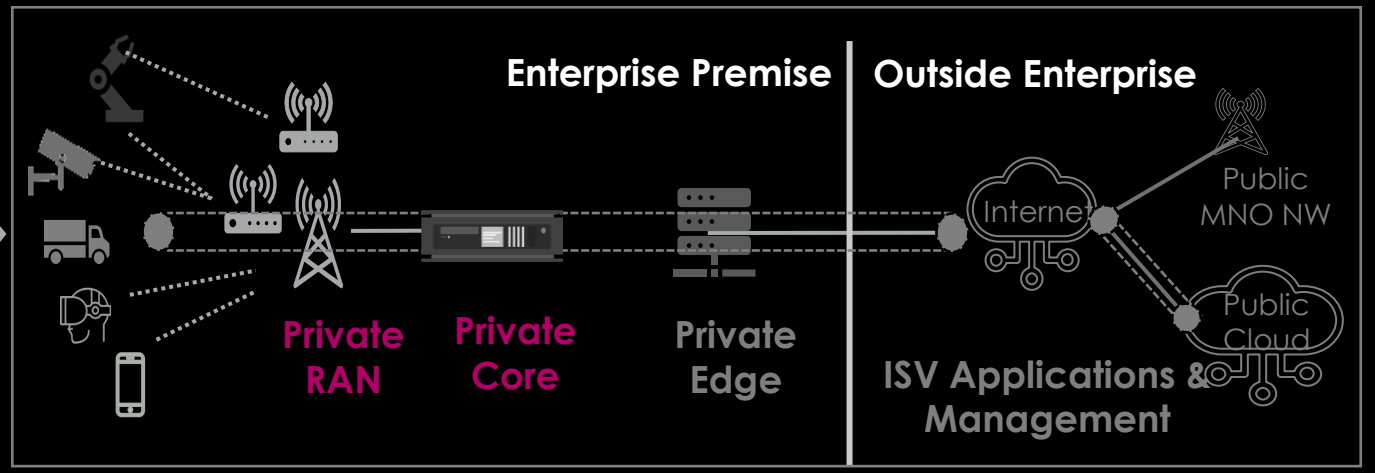
Why are Cellular Private Networks relevant

Together with other connectivity solutions (e.g. Wi-Fi, Ethernet, LPWAN, etc), Private Networks are the foundations upon which Enterprises build their digital transformations.

Private Networks play a key role in enabling some the most innovative use cases (e.g. Collaborative Worker, AGVs etc.) where cellular connectivity works best.





End to end Services

End to End Security

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How we can help..

From PEN, MEC to Smart Cities….

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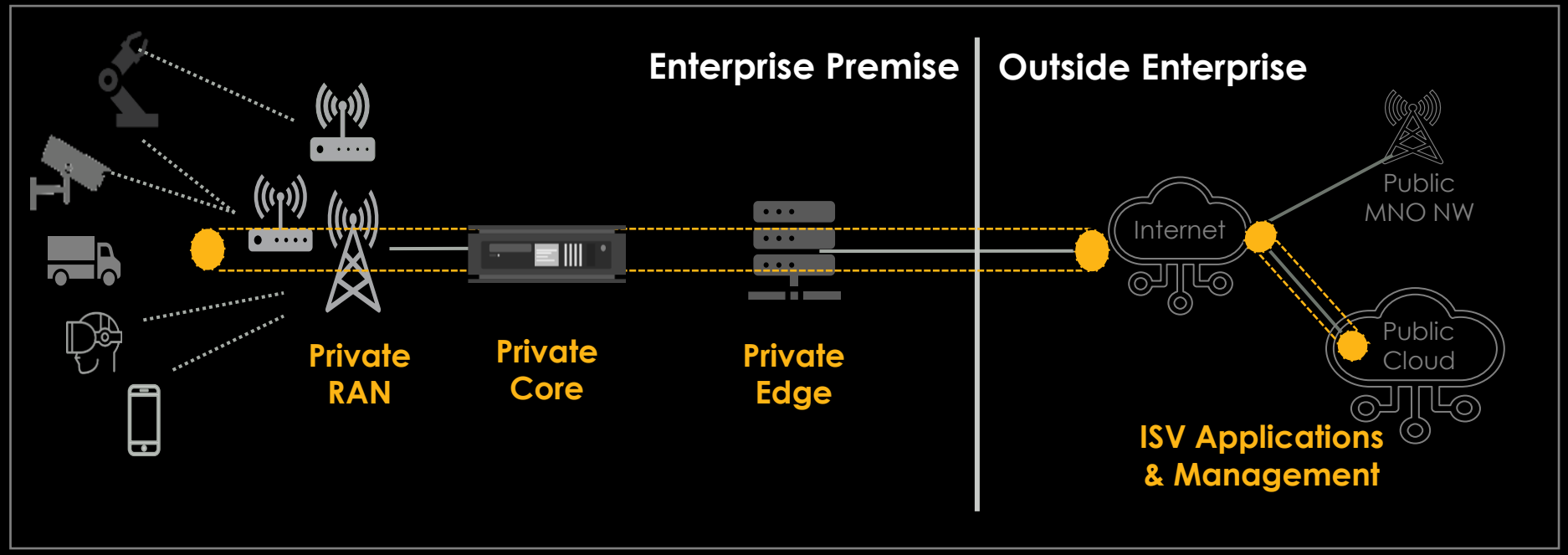
Where can we help you

Amdocs and our Partners bring together the private network, edge, cloud, apps, security and services that enable SPs to deploy and operate enterprise digital solutions at scale and monetise more than connectivity



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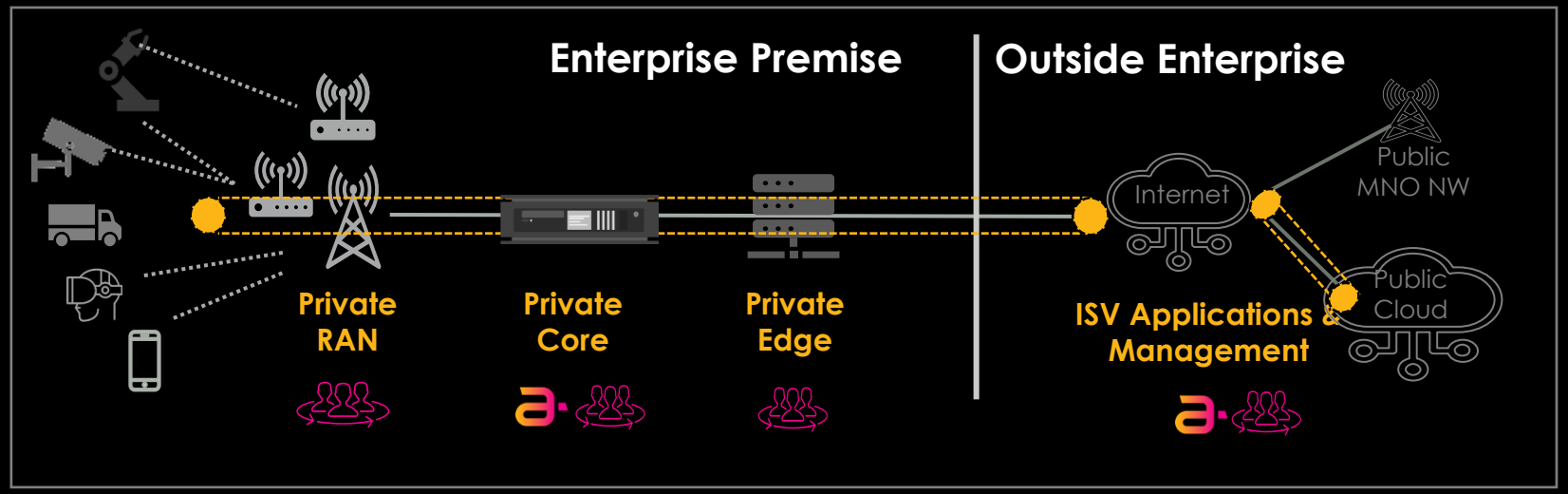
Our Assets



End to end Services

End to End Security

Core & Network Analytics
- Policy/Charging/Slice & Analytics NW functions

Management Platforms
- Operations dashboards and PEN360

Services
- E2E Design, Deploy, Operate
- Systems Integration + Program Management
- Operations, NetOps, Monitoring, AiOPS

Partners

Core
- Core (multi-partner core)

Edge
- Intel, Dell, ASE

ISV ecosystem
- ISV ecosystem
- Enterprise Playbooks and Knowledge
- Labs (ISV, Devices, UE, etc)

RAN
- Samsung, Nokia, Airspan, Ruckus etc.

Security
- Allot, PaloAlto, F5

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Our SI Services

Offering customized to complete e2e **Solutions & Services**

Design

Design & Planning

Solution, Coverage, Capacity

Spectrum Allocation

CBRS SAS

Deploy

Rollout & Launch

(RAN, Core, DAS)*, MEC

System Integration

E2E Integration NW & Apps

Operate

Network Operations

NOC, Tier 1 / 2 , Assurance

eSIM Management

Consumer, M2M*

TechInsights NEO

CBRS SAS

TechInsights NEO actix OPENET An Amdocs Company

TechInsights NEO

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eSIM

*Partners

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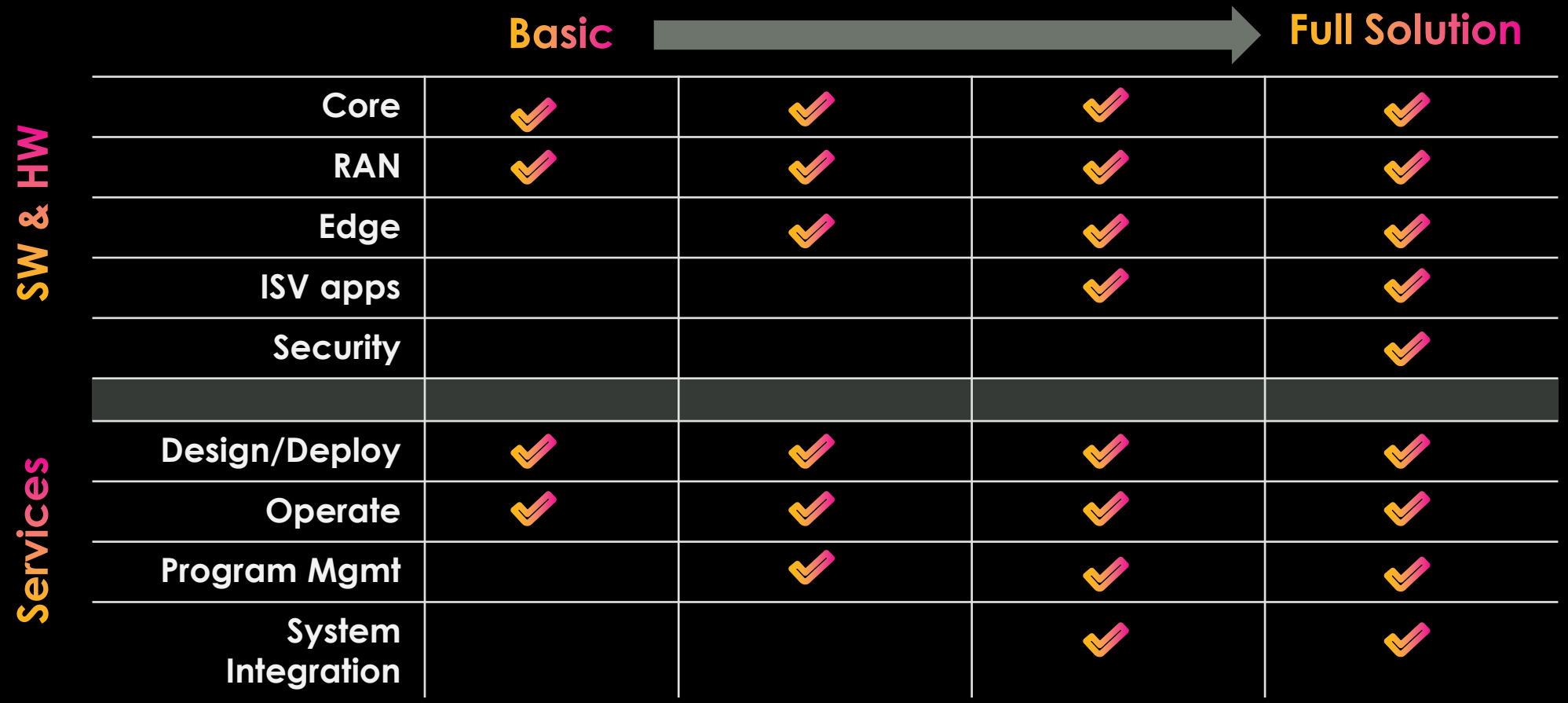
Modular offering tailored to your needs



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Amdocs e2e PEN in play….

Utilities – Modernizing network for operations

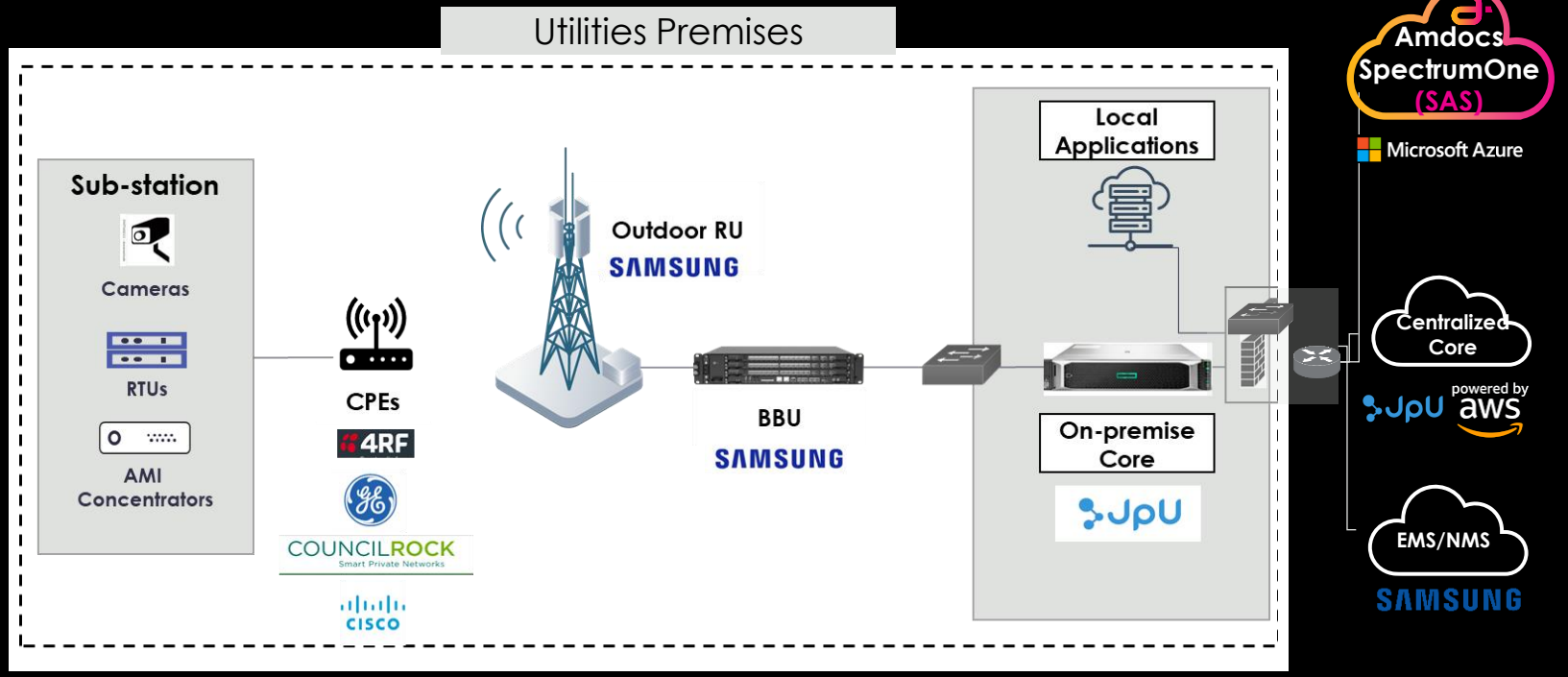
Smart Utilities

Use cases:
Smart Metering
Distribution Automation
Security & Video Surveillance

Triggers:
Grid modernization
Future proofing network

Technology Evolution:

Legacy Wireless → LTE



Solution, product selection & reseller
RAN, Core, CPEs, Cell Site Routers / Gateways

RF & Network Topology design
Connectivity arch., IP design, RF design

E2E Systems Integration & testing
Configure RAN, Core; systems and e2e testing

Application profile testing
Throughput, performance, reliability

Network & Service operations
E2E monitoring, analytics, L2, L3 support

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Amdocs e2e PEN in play….

Research & Education – Bridging the digital divide gap

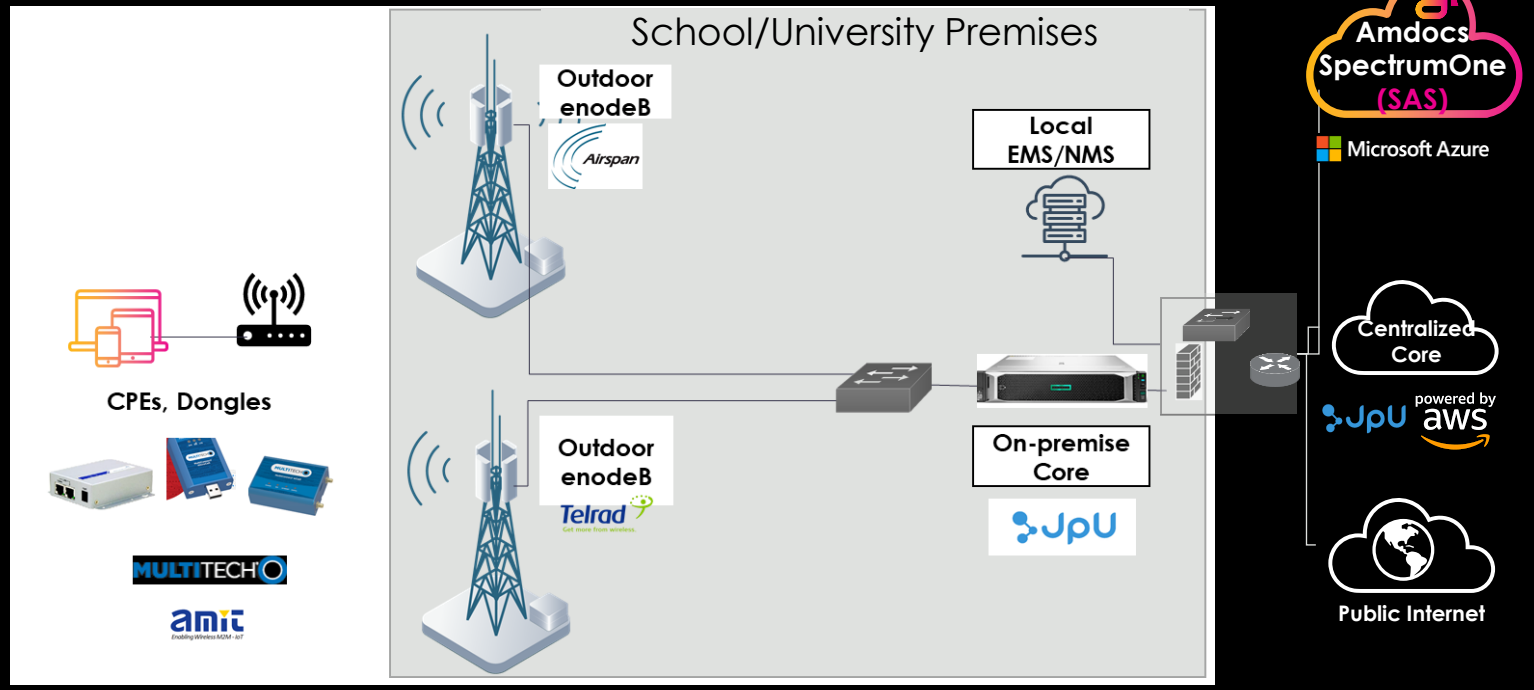
Campus & extended campus Broadband

Use cases:
Reliable voice, data
Enterprise Applications
Roaming to public networks

Triggers:
In-building / Campus coverage
Extended reach to students @home

Technology Evolution:

Wi Fi → Lte / Wi Fi 6 CERTIFIED → 5G



Solution, product selection & reseller
RAN, Core, CPEs, Cell Site Routers / Gateways

RF & Network Topology design
Connectivity arch., IP design, RF design, Site planning and Design

E2E Systems Integration & testing
Configure RAN, Core; systems and e2e testing

Field testing, user testing
Throughput, performance, coverage, reliability, Drive test

Network & Service operations
E2E monitoring, analytics, L2, L3 support

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Howard University- Private Network in 3 weeks

September 3

- HU got to know they are under attack
- Amdocs gets call to build a CBRS PEN

September 7

- HU attack publicly announced
- IBM shows up on site to investigate
- All classes cancelled and students without internet
- Amdocs completes secure solution architecture

September 9

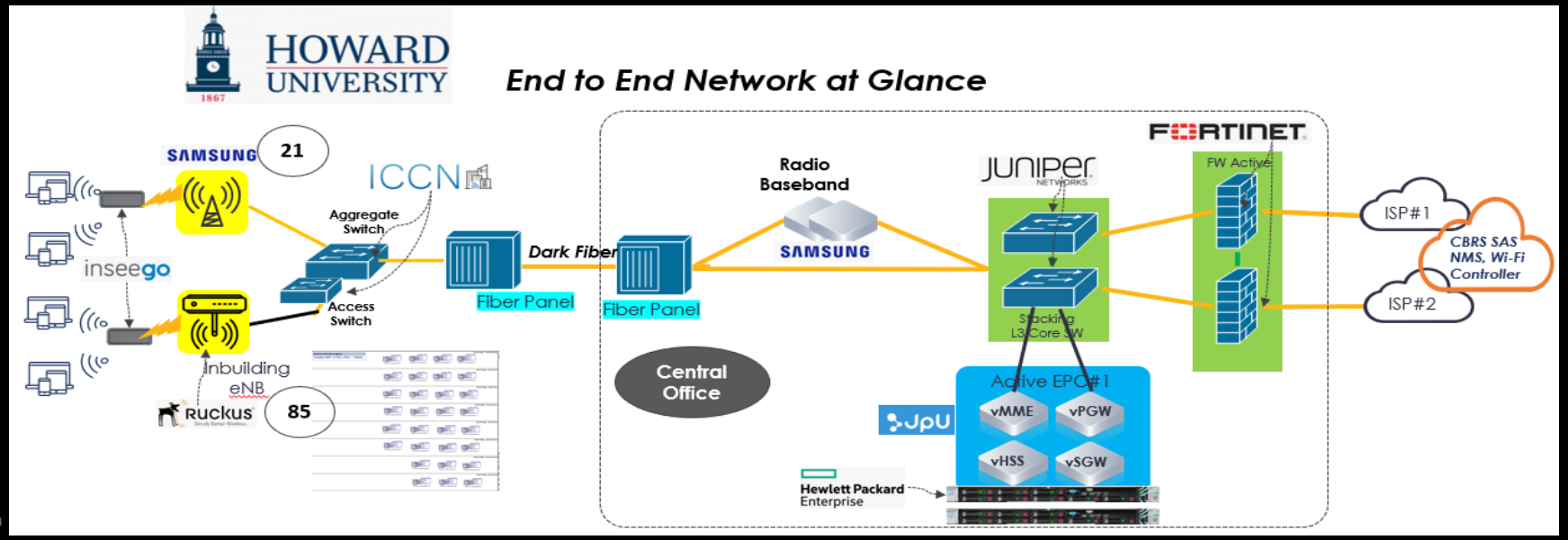
- Equipment ordered and work starts
- RAN, Core, Transport & Security part of service
- 1000 users to be served

September 23

- 2 buildings with 85 units completed
- Data and call tests complete
- Security hardening with firewall & VLAN's done
- HU wants CBRS to be redundant to Wi-Fi

September 28

- Live demo with CIO & team successful
- More HBCU campuses to be signed up
- All HU buildings to get CBRS PEN
- PEN is 5X faster than Wi-Fi
- HU sees a very secure E2E network and wants to order for all students



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Our Investment

Partnerships to full integrated solutions….

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Our investment in an e2e ecosystem

Immense open ecosystem

- Reseller agreements with multiple hardware and software vendors
- Use case driven solutions tailored for different private networks
- Leveraging existing partner with Amdocs network capabilities to bring complete solutions to private networks

Proven Private Network Experience

- Deployed several PEN directly to enterprise customers in different industry verticals
- Active member of TIP since 2016 for 5G open innovation lab with successful private network agriculture use case
- Solution for both service providers and enterprise customers

Cross domain & functional expertise

- RAN, transport, core, and Internet consultancy services for PEN customers
- Network in a box model for enterprises (including HW/SW/services to deploy entire private networks
- Automation and SW platforms to streamline process and speed up deployment

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Our investment in Partners

EUD, CPE

- BEC Technologies
- Telrad
- BLiNQ Networks
- Sierra Wireless
- MultiTech
- amit – Enabling Wireless M2M - IoT

RAN

- Samsung
- Mavenir
- Airspan
- Telrad
- BLiNQ Networks
- Ruckus – an ARRIS company
- CommScope
- Baicells
- Nokia
- Juganu

Transport

- ip infusion
- exaware
- Edge-corE Networks
- Delta
- Juniper Networks
- Cisco

Core

- Microsoft
- affirmed
- Samsung
- a.
- Hewlett Packard Enterprise
- Microsoft
- metaswitch
- JpU

Cloud/Hybrid Cloud

- Azure
- Google Cloud
- aws

Firewall

- paloalto Networks
- Fortinet

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5G Experience Innovation Lab

Amdocs sandbox where service providers and partners can **incubate new 5G solutions** and **accelerate commercialization** of those services.

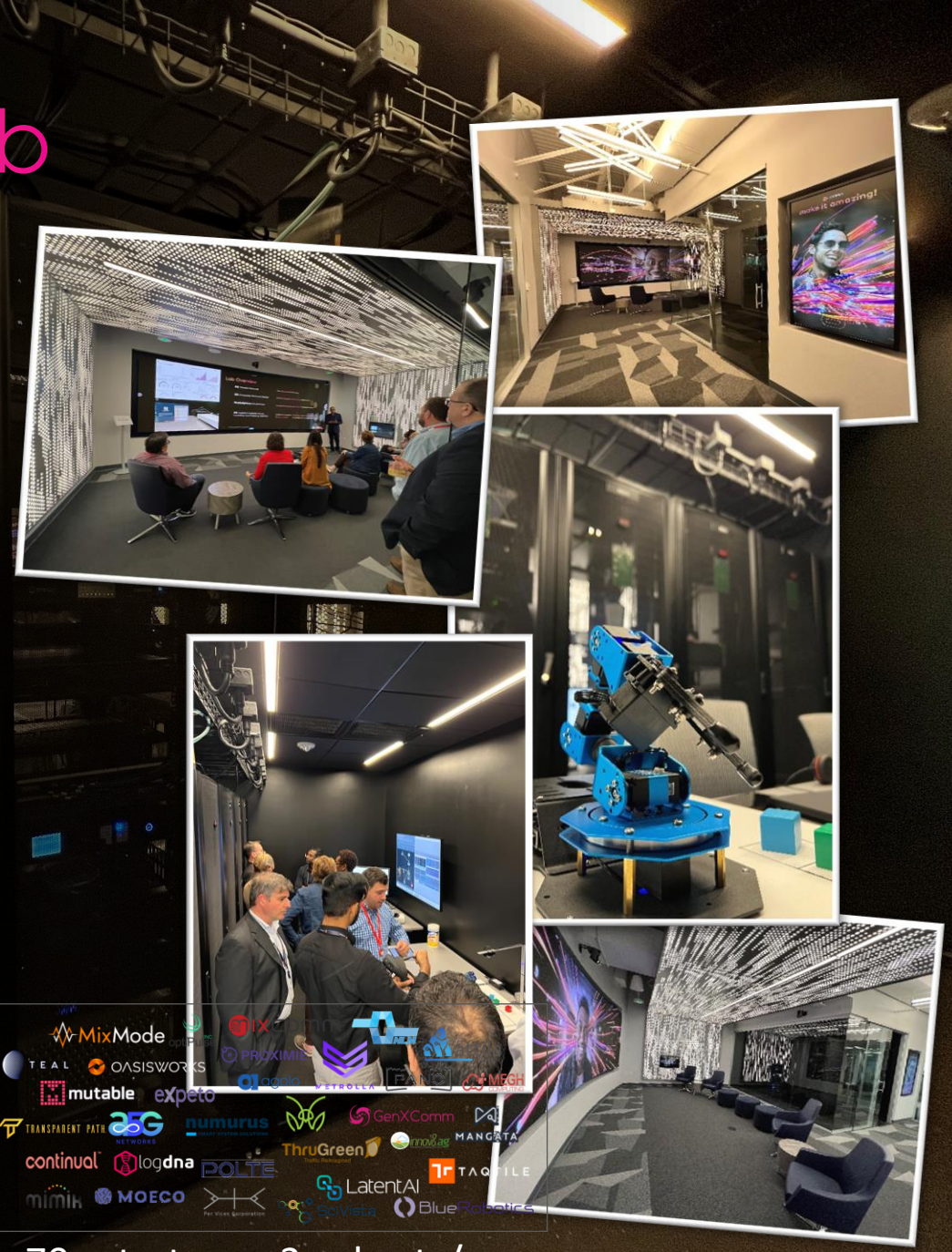
Live 5G SA Network(s)
Built with an ecosystem of diverse partners

Enterprise-driven Use Cases
Field tech support, AI-enhanced commerce, smart industry

Edge Applications
Distributed architecture, edge tuned, cloud core

Innovation Incubation
Use cases built based on customer priority & participation

Proven 5G Blueprints and Use Case Factory
Telcos, universities, school districts, utilities



70+ start-ups, 3 cohorts/year

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Q&A

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Let's make it amazing

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