

Next-Generation WAN Solutions in Practice:

International Consultative and Modular
Approach

Sourcing Advisors & Analysts Days 2023 //
Breakout Session, June 29

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Agenda

- 01 Scene Setting – Magenta Business Networks
- 02 Modular Services and their Value
- 03 Enhanced Internet & “Pay as you Grow” uCPE
- 04 Fast pricing and why its important
- 05 Key takeaways

What do your customers need?

Resilience in a dynamic environment and business continuity



The world keeps turning –
'new normal' becomes standard

- Anywhere is the new office
- **Cloud** is the new data center
- **SaaS** is the new application
- **The Internet** is the new company network

Customer success factors

Cost reduction, new sourcing approaches like bring-your-own

Enabled co-manage, self- services and APIs

Digitization in a matter of days, not years

Easy-to-use technology like 'X as-a-service'

Cloud first implementation – incorporate clouds and SaaS

End-to-end networks security built-in


Enterprises are busy –
multiple dimensions to be managed




- Manage transformation
- Protect distributed resources in multiple environments
- Ensure business flexibility
- Ensure operational stability

Intelligent networks needed to enable flexibility and handle complexity

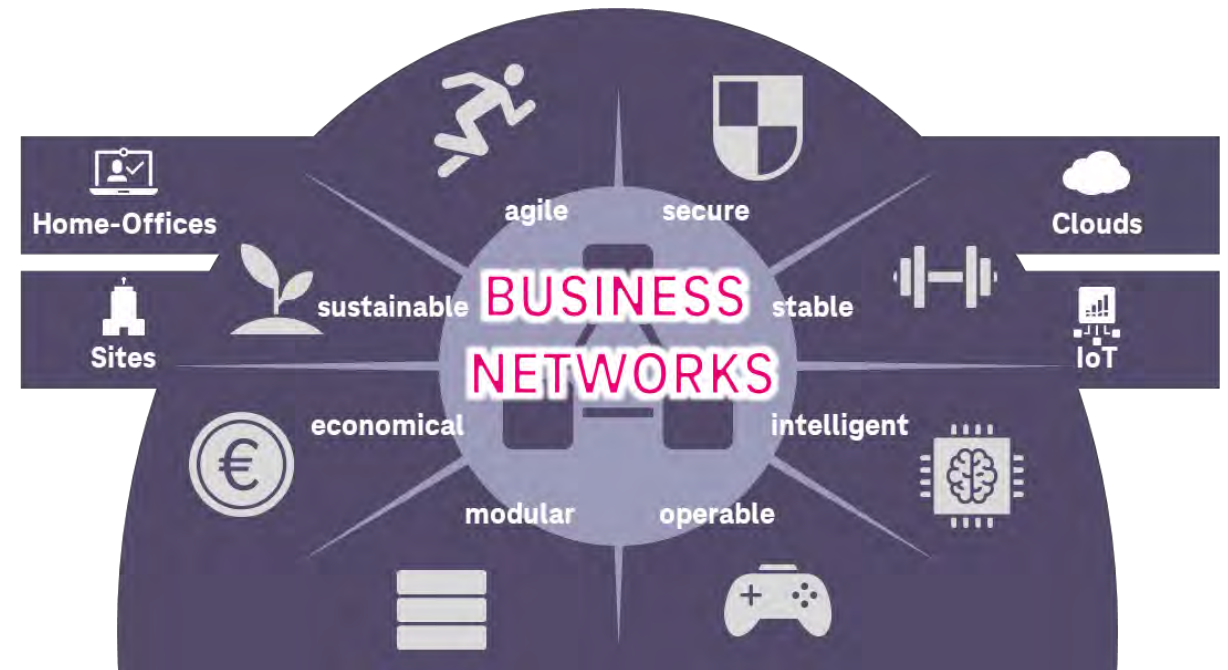
WHAT we do – flexibility enables customer use cases
Deutsche Telekom approach



ELEMENTS	OPTIONS		
Management	Fully managed	Co-managed	API-based access
SD-WAN/(W)LAN	SD-WAN only	SD-LAN/WLAN only	Integrated
SD-WAN features	Lean	Advanced	
Security	Local & basic	Local & advanced	SASE
Cloud Connect	On-ramp	Private connectivity	Multi-cloud
Coverage	national	Regional	Global Special (e.g., CN)
Underlay	BYOA	DT provided access	BYOA & DT provided
CPE / Device	Physical CPE	Universal CPE	Virtual CPE
Multi-Provider Mgmt.	Small	Medium	Full



To achieve digital transformation and intelligent networks
Outcome for the customer



€1.2 billion enterprise networking business of Deutsche Telekom

Deutsche Telekom provides two types of SD service

Modules and products

Modules

- Flexible / customized services
- Globally available
- Specific and complex demand
- Handling by dedicated experts on customer/provider side
- Strong integration with Co-Management
- Standard automation
- Support mainly via dedicated vendor competence center



SD Networks



Security



Connectivity



Orchestration

Products

- Modular and Standardized
- Globally available
- Advanced but regular demand
- Co-Management with simplified / self-service approach for customer
- Full integration
- Full automation
- Extensive support mainly via line organization functions

MODULES

Broad variety of services, different needs of functions, geographies, and vendors

SD-WAN/SASE from competence center

- Manufacturing mode via competence centers
- Vendor-specific skilled teams for service delivery and operations
- Common offering layer
- Quality-assured based on zero-outage



Optimization and acceleration of large and complex application landscape



Ease of use and flexibility with single orchestrator layer across CCTV/WIFI/SD-WAN



High security integrated into scalable hardware platforms – SASE-ready



For cloud-first operation with a range of players, focus on audio and video



Key- topic software is core business; choice for a one-stop solution



Strong hardware and a robust security solution out of the box with options for AI & SASE

Module proposition

- Flexibility of setup in times of ongoing market consolidation
- Delivering on various customer use cases with pragmatic / short-term onboarding
- No need to change existing underlay setup (such as a multi-carrier-strategy)














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And now for the disruptor

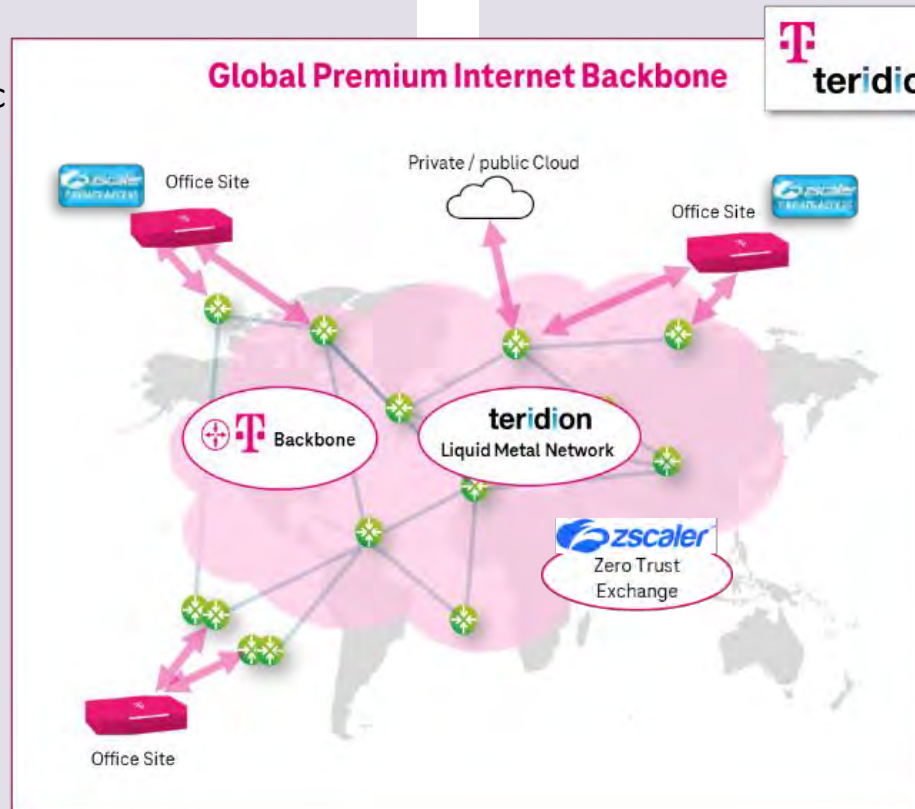
2000s	2018 – 20xx	2022-20xx
<p>20+ years ago private MPLS networks became standard</p> <ul style="list-style-type: none"> Highly reliable & secure private networks with performance SLAs Long lead times for installation and changes Not designed for cloud adoption / remote work	<p>Switching from legacy MPLS to cheaper and more flexible internet connections with SD-WAN</p> <ul style="list-style-type: none"> No performance SLAs; security becomes a concern Ubiquitous internet availability Easy to integrate cloud / remote work	<p>Which network technology will disrupt traditional enterprise networking?</p> <ul style="list-style-type: none"> Premium internet with performance SLAs and zero trust Service chaining on uCPE and PoP (e.g. SD-WAN or ZTNA) Globally available and cloud-agnostic

Premium Internet Underlay

fully managed internet access with E2E SLA guarantee

The offering

- Service and Performance SLAs like packet loss and round-trip for site-to-site and cloud traffic
- Complete solution – access, backbone, CPE
- Global coverage with premium Dedicated Internet Access (DIA) – last mile
- Deutsche Telekom's global backbone extended with Teridion's cloud-based, software-only WAN solution:
 - 500 PoPs worldwide with 25 cloud and infrastructure providers
 - Machine learning algorithms adapted to network performance
- **Flat-rate pricing model** based on access and premium bandwidth demand



The value prop

- High-end global network with cutting edge, patented technology
- Cloud / backbone-agnostic by design
- Fast & automated onboarding and network configuration
- Direct in-the-fabric support by increasing number of SD-WAN vendors
- Roadmap includes...
 - Additional access designs / technologies
 - Universal CPE
 - SaaS application integration
 - Remote user integration
 - Security service chaining with Zscaler and Fortinet at start

Premium Internet benefits

MPLS-like performance at lower cost



Premium Internet vs. MPLS (average)

PoP-to-PoP Performance SLAs	Premium Internet Underlay	MPLS (average)
Packet Loss	Max. 0.1% ¹	From 0.1% to 1% ³
Round-Trip Delay (Europe-Europe)	From 45 to 74 milliseconds	From 45 to 84 milliseconds ³
Round-Trip Delay (Germany-Asia)	Max. 219 milliseconds ²	From 255 to 340 milliseconds ³
Round-Trip Delay (Germany-NA)	From 135 to 184 milliseconds	From 100 to 170 milliseconds ³

Additional advantages



- Cloud adoption and remote users – MPLS architectures are often not designed to cope with increasing cloud adoption and local internet breakouts at the branch level. Premium Internet offers direct cloud connectivity at the branch level and supports the increasing number of remote users
- **Lower cost** – Premium internet provides MPLS-like performance SLAs, but at a lower cost

uCPEaaS by DT/Intel is a fully managed uCPE service with open-source OS and pay-as-you-grow model

The offer

- DT-managed uCPE box as new solution offering in cooperation with Intel
- Virtual network function (VNF) catalog includes:
 - Teridion VNF for routing, monitoring, testing
 - SD-WAN Overlay VNF, e.g., Aruba, Cisco, Fortinet, Juniper, Versa, VMware
 - SASE/Zero Trust security features, e.g., zScaler, Fortinet
 - Management and Orchestration by Software-vendor, e.g., Ekinops
- Combined with Premium Internet solution



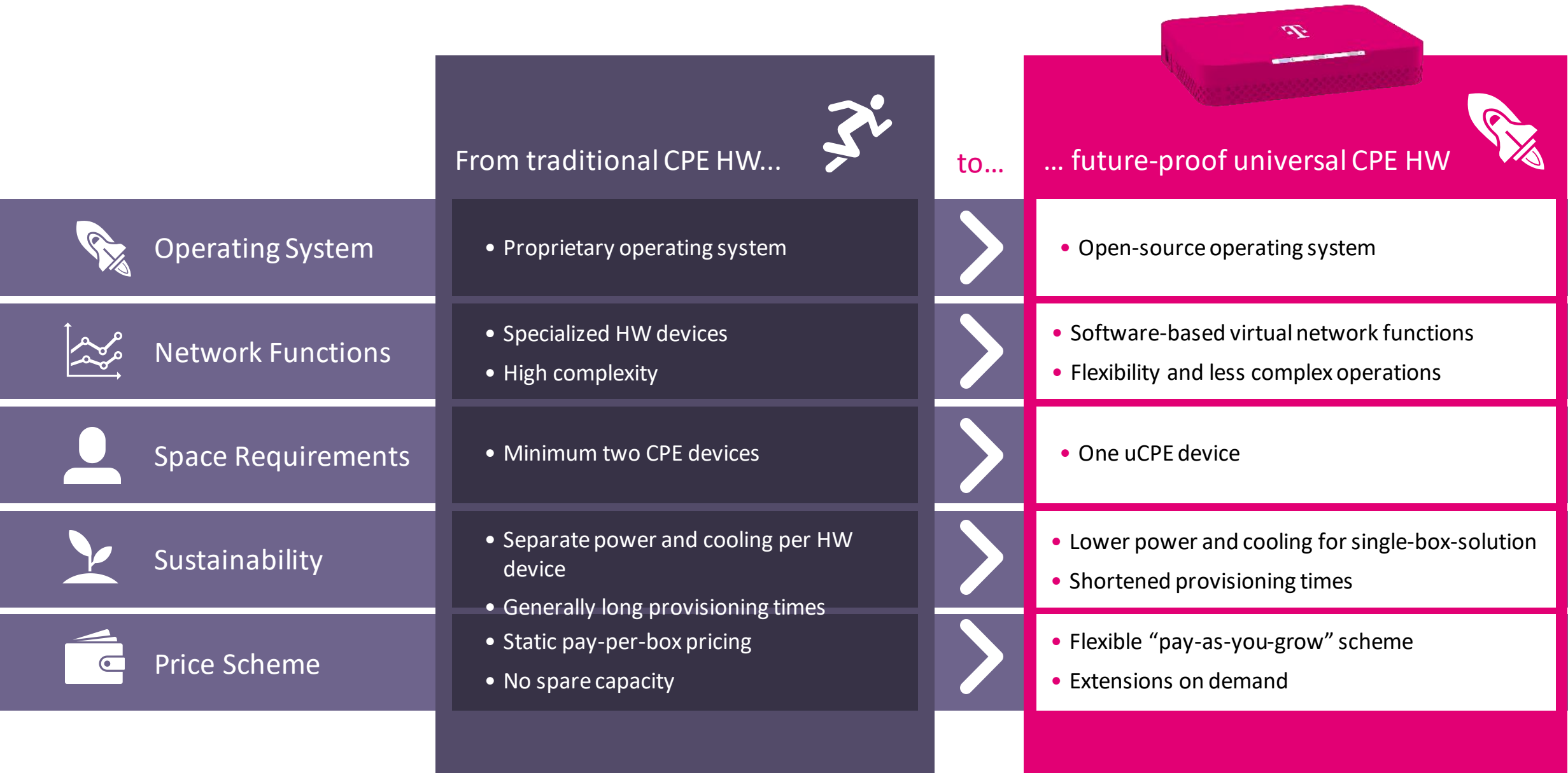
Peter Arbitter (DT), Robert Prince (Intel)
on Digital-X 2022

The value prop

- From many hardware devices to one fully managed box
- More automation
- Simplified operations with additional cores to be activated on demand
- Faster installation times and on time delivery
- Less truck rolls, power, and cooling¹⁾
- Full cost visibility based on pay-as-you-grow principle
- Roadmap includes:
 - SASE /zero-trust over Premium Internet and
 - Mobile 5G option (eSIM) on uCPE

1) pending higher VNF utilization and less HW devices needed

Premium Internet with universal CPE





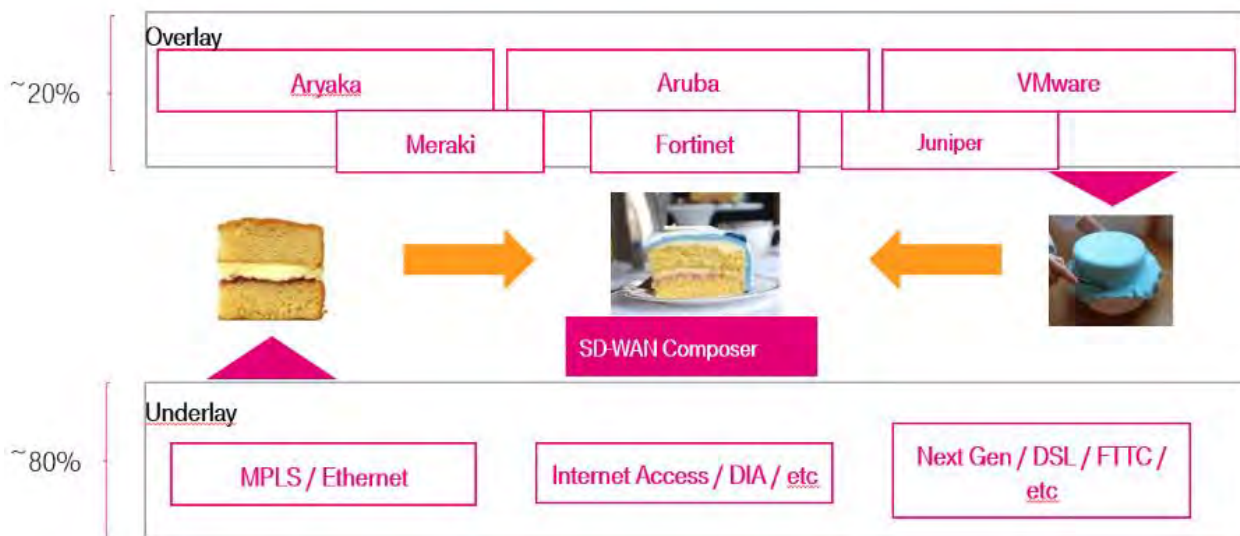
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Rapid quotes

Continuous improvement of the quoting experience

SD-WAN Composer quoting tool



1. Modular design and able to fill in any gaps, i.e: limited information and/or changes
2. Different designs and options (underlay, overlay, term, etc.) all at once
3. ABC approach: able to cut and dice pricing for any underlay/overlay within 1 hour
4. ABC approach: able to quote many customers and/or scenarios at once
5. Able to benchmark costs/prices within contract and new business
6. Continuous improvement on vendor costs by technology, country, etc.

Why is it important for sourcing advisors?

- Agile: able to quote hundreds/thousands of site networks inc. budget within 24 hours
- Flexible: able to quote different scenarios such as 3-5yr term, MPLS, internet, PIU, broadband, overlay
- Growth: unlimited support for opportunities from sourcing advisors
- Structure: you always get the best offer for your customer (renewal or new)
- Kaizen: sourcing advisors will get the latest technology, costs/prices in the market



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Key takeaways



- Leading Digital Telco — Deutsche Telekom has strong market position and good momentum — #1 Telco in Europe
- Intelligent networks inevitable to enable customer success — Deutsche Telekom's proposition: MagentaBusiness Networks
- **Deutsche Telekom** offering and pricing: ultimate flexibility via modules, scaling/integration/automation via platform products
- Global Connectivity — DT doubles down on global internet and launches 'Premium Internet Underlay'
- Magenta uCPE leveraging pay-as-you-grow flexibility with our SD-WAN and PIU services
- Built-in security — DT joined forces and provides clear roadmap towards 'Magenta SASE' proposition

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A nighttime photograph of a city skyline, likely New York City, featuring several illuminated skyscrapers. The image is overlaid with a large, semi-transparent pink graphic on the right side. This graphic contains the text 'Thank You!' and a large white 'T' logo. Pink light trails from moving vehicles are visible in the lower right portion of the image, adding a sense of motion.

Thank You!

T