



DEUTSCHE TELEKOM CAPITAL MARKETS DAY 2015

Bonn, February 26/27, 2015

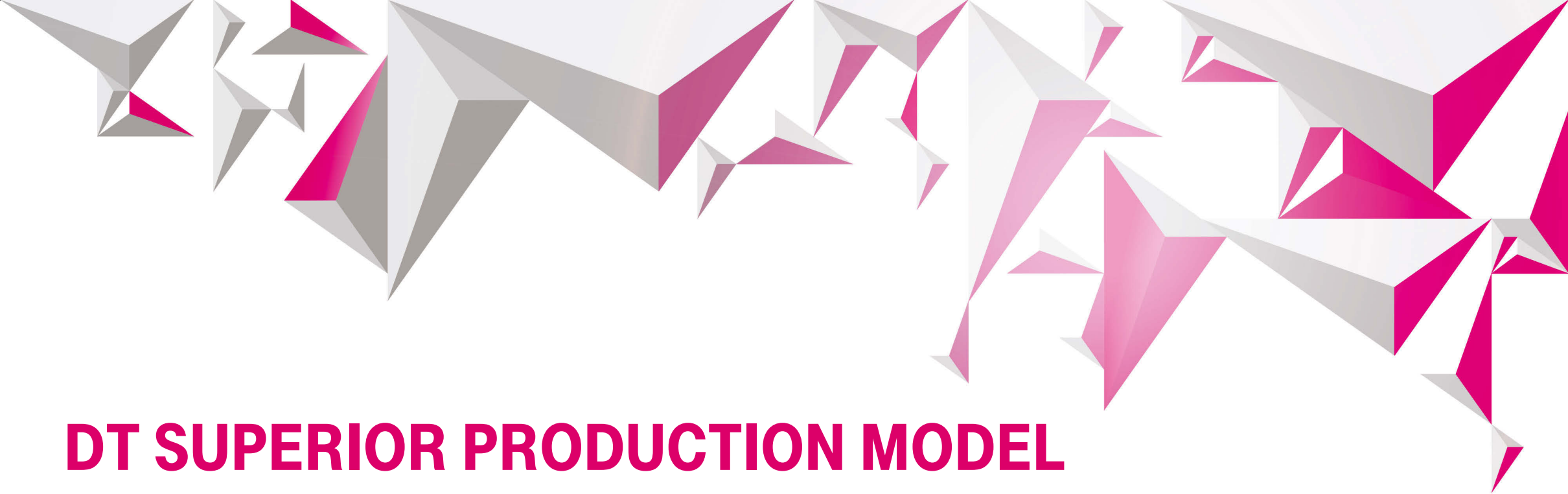


LIFE IS FOR SHARING.

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In addition to figures prepared in accordance with IFRS, Deutsche Telekom also presents non-GAAP financial performance measures, including, among others, EBITDA, EBITDA margin, adjusted EBITDA, adjusted EBITDA margin, adjusted EBIT, adjusted net income, free cash flow, gross debt and net debt. These non-GAAP measures should be considered in addition to, but not as a substitute for, the information prepared in accordance with IFRS. Non-GAAP financial performance measures are not subject to IFRS or any other generally accepted accounting principles. Other companies may define these terms in different ways.



DT SUPERIOR PRODUCTION MODEL

Claudia Nemat, Board member for Europe and Technology
Bruno Jacobfeuerborn, CTO

OUR STRATEGY

LEADING EUROPEAN TELCO



SUPERIOR PRODUCTION MODEL WITH FOUR PROGRAMS BASED ON TECHNOLOGY LEADERSHIP

DIGITAL TRANSFORMATION OF CUSTOMER FACING PROCESSES

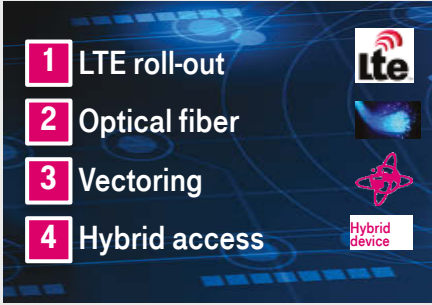
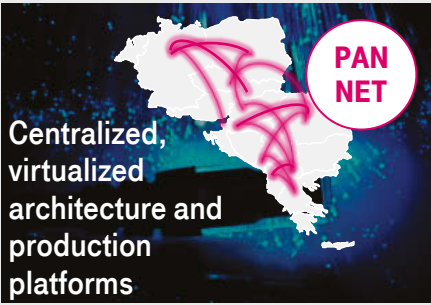
COST EFFICIENCY & SIMPLICITY



ALL-IP TRANSFORMATION

PAN-EUROPEAN NETWORK

INTEGRATED NETWORK STRATEGY



PLUG & PLAY

TIME TO MARKET

BEST CONNECTIVITY



Annual run rate adj. Opex savings:

≈ €-1.2 bn¹

(steady state in early 2020ies)

¹ Gross Opex savings D/EU before any counter effects (e.g. personnel cost increases)

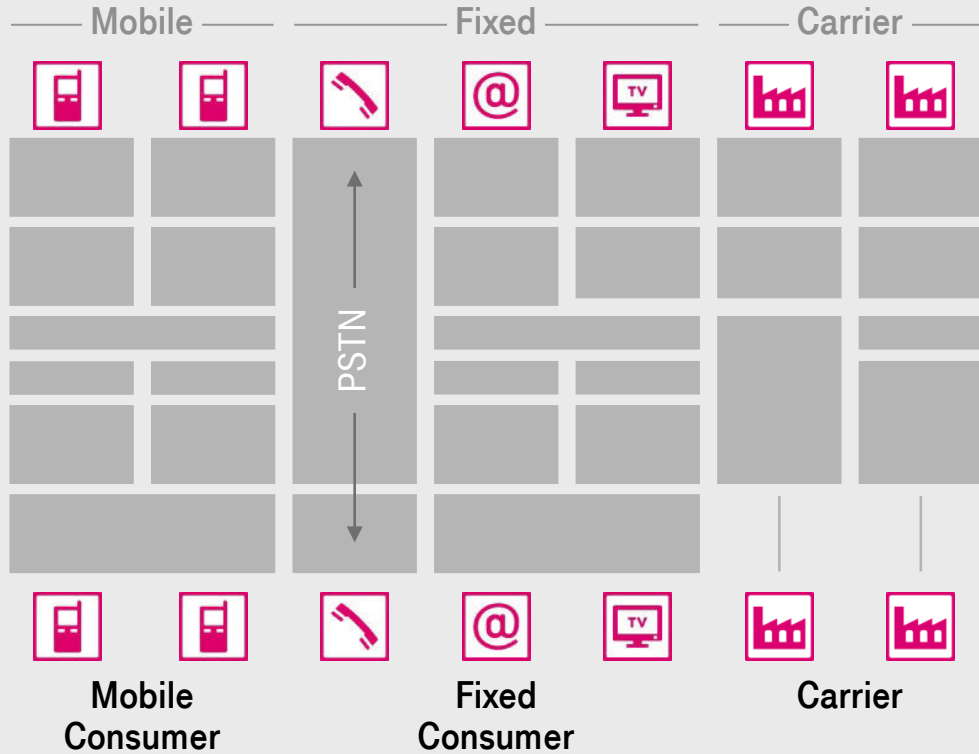
ALL IP TRANSFORMATION: THE CREATION OF A SIMPLIFIED AND STANDARDIZED NETWORK

ALL IP

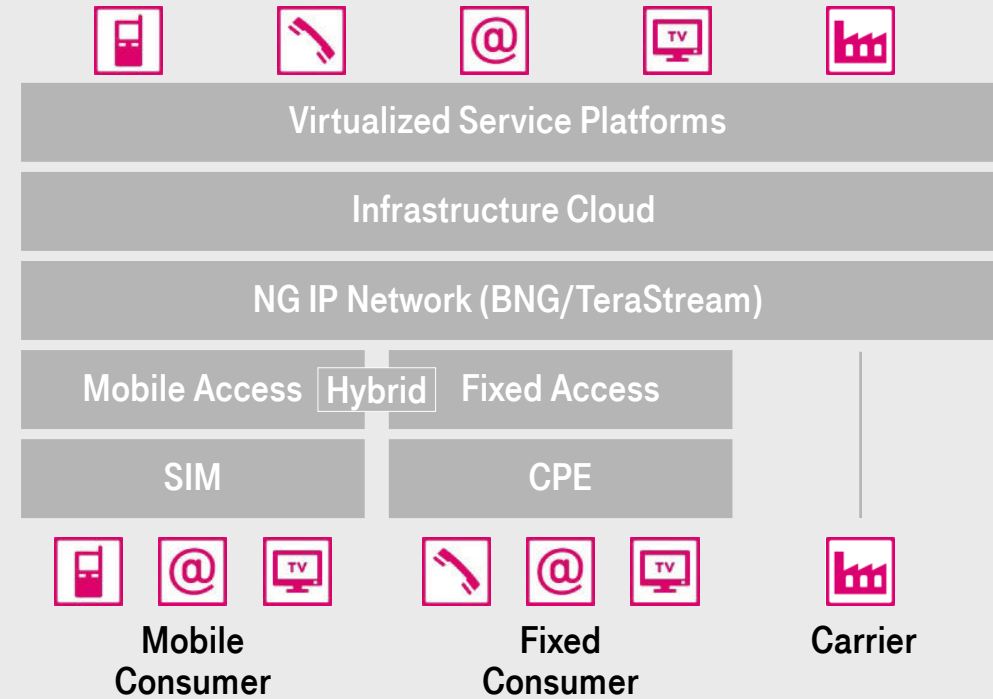
PANNET

INS

FROM THE "OLD PSTN WORLD" ...



...TO THE "NEW IP ERA"



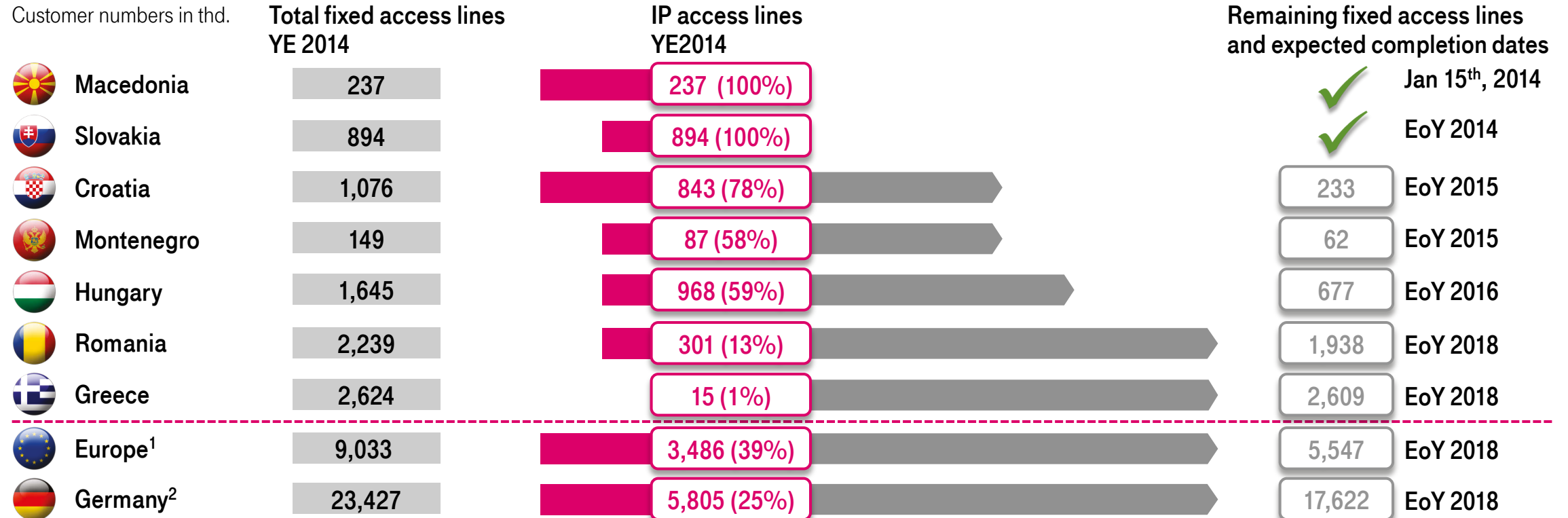
ALL-IP TRANSFORMATION ON TRACK

ALL IP

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ALL-IP TRANSFORMATION BY COUNTRY




¹ Incl. Czech Republic (131 thd. fixed lines, 98% IP), and GTS (37 thd. fixed lines, 32% IP) ² Incl. retail, Call&Surf via Funk, wholesale bundled and unbundled

PANNET TARGET PICTURE 2020+: FROM NATCO-CENTRIC TO INTEGRATED PAN EUROPEAN SERVICE PRODUCTION

TODAY

FUTURE


Complex service production with distributed vendor-specific network elements




Highly simplified, virtualized, IP-based production architecture



Different, historically grown production in each NatCo




Integrated production, delivered to all NatCos



Each NatCo with own product development logic



One common product development logic for all countries



DIFFERENTIATION: HOLISTIC AND RADICALLY LEAN APPROACH AT DT

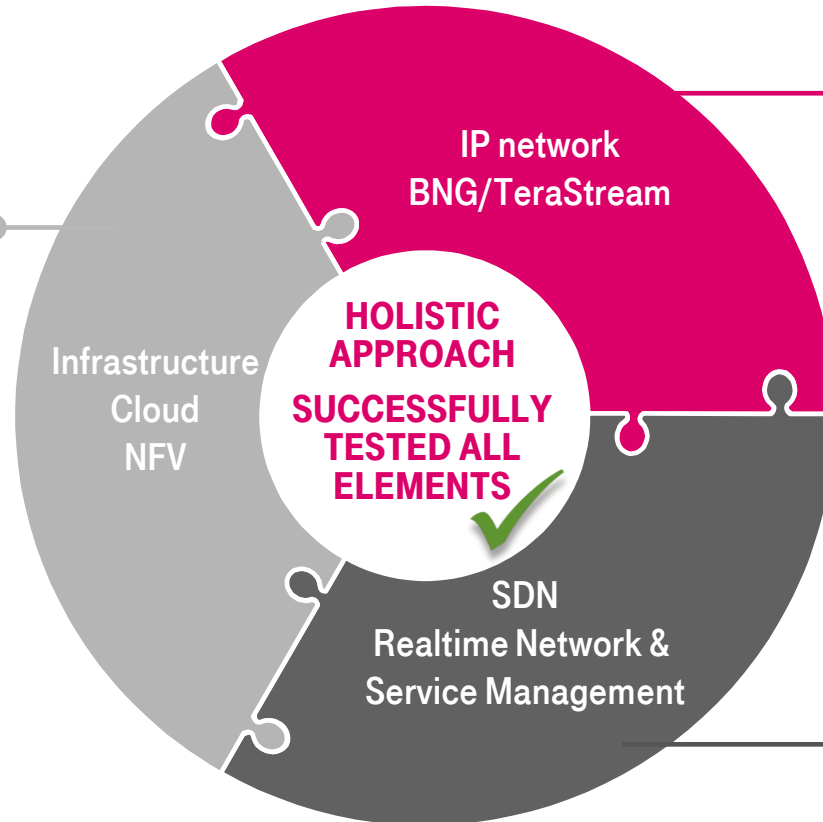
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INFRASTRUCTURE CLOUD

- Tight integration of data centers and IP network = **Infrastructure Cloud**, foundation for NFV
- Fully automated – = **Cloudification of network functions**
- **Minimized latency**
- **High bandwidth** apps



DRASTICALLY SIMPLIFIED IP NETWORK (BNG/TERASTREAM)

- Executed in **radically lean way**
- **IP+ Optical Integration** to lower Capex & Opex
- Scalable up to **the highest bandwidth**

REAL-TIME NETWORK AND SERVICE MANAGEMENT

- Based on **SDN** concept
- **Software flexibility** of previously HW dominated operator
- **Standardized open interfaces**
- **Accelerated product introduction**

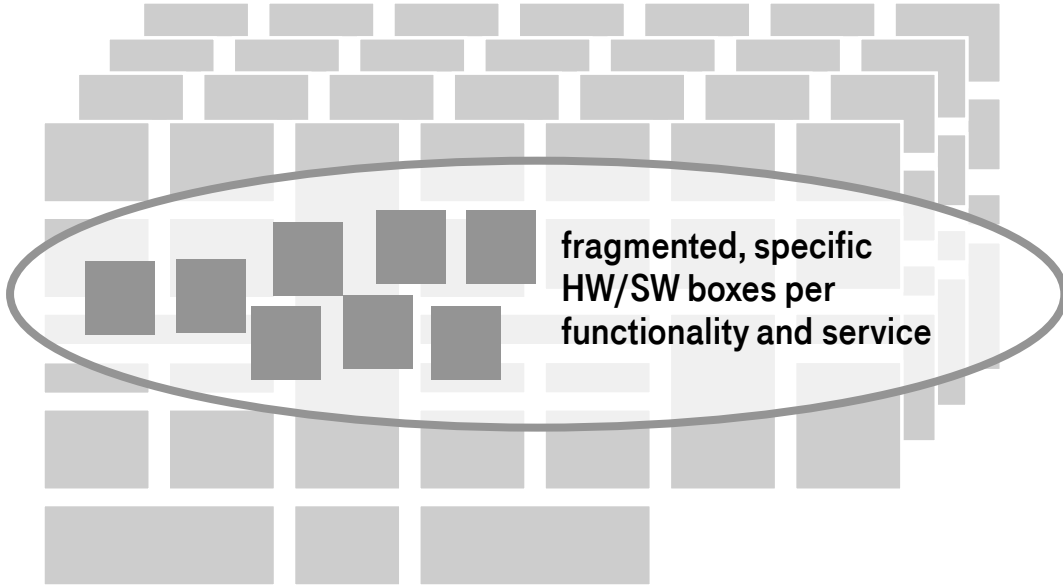
PANNET: SIMPLIFIED, CENTRALIZED AND VIRTUALIZED

ALL IP

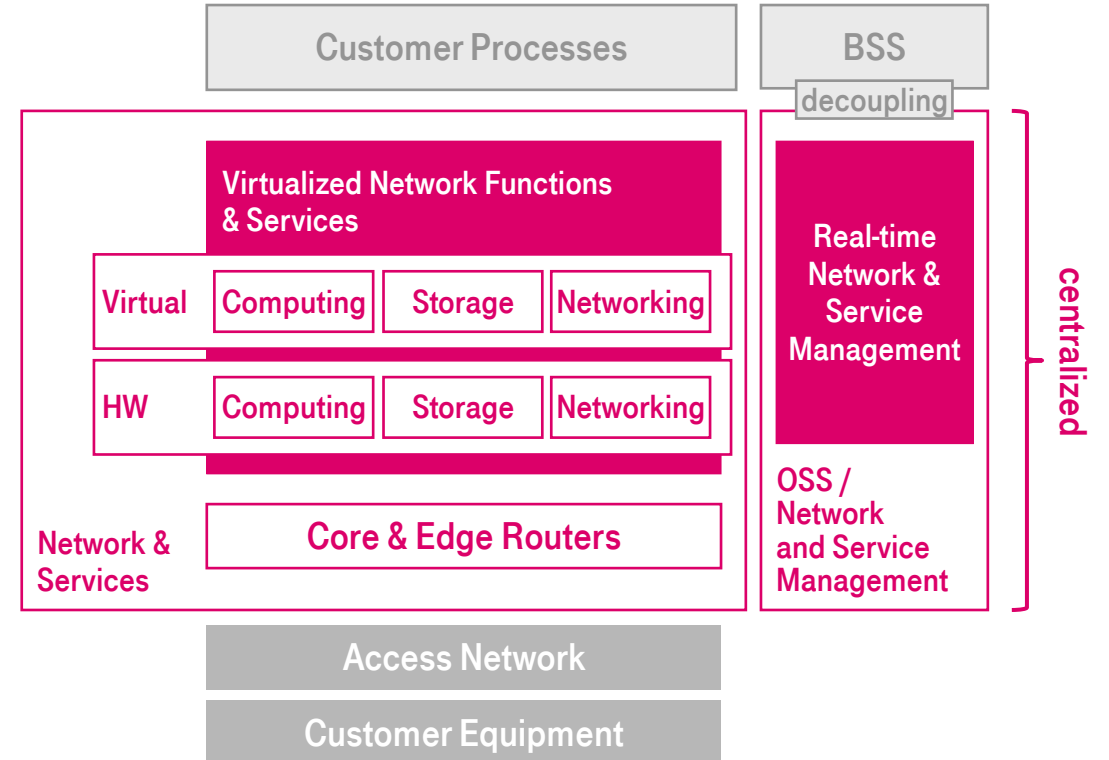
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LEGACY, HETEROGENEOUS, DISTRIBUTED WORLD...



...TOWARDS A LEAN AND CLOUDIFIED APPROACH



PHYSICAL INFRASTRUCTURE OF PANNET

ALL IP

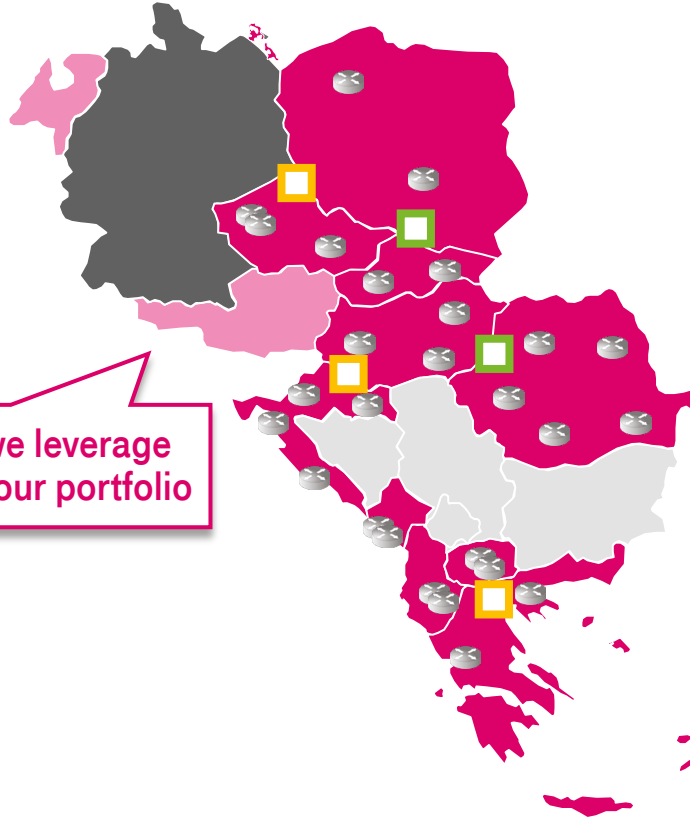
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DT EU PORTFOLIO: BROAD & ADJACENT FOOTPRINT IN EUROPE

illustrative, locations and number of backend data and network operations centers not decided yet

With PANNET we leverage the benefits of our portfolio



PANNET characteristics:

- 3 backend data centers ()
- 2 geo redundant network operations centers ()
- In each country minimum 2 data centers with routers at the edge of the network ()
- 1 distribution network, fast and highly capable

LOCAL PRODUCT CONFIGURATION: CENTRAL PRODUCTION CATALOGUE

illustrative

Central Production Catalogue

Countries

TV

- OTT services
- Standard Def.
- High Definition

BROADBAND

- ADSL 16 Mbps
- Vectoring 100 Mbps
- Fiber 1 Gbps

VOICE

- One standard line
- HD voice
- Multiple lines

Country A

Country B

Country C

MWC 2015: CLOUD TV & GAMING

- First time B2C products introduced at the same time in three countries
- TV, gaming and applications on all screens



- **Cross-country recommendation engine**
- Your personalized guide through media world

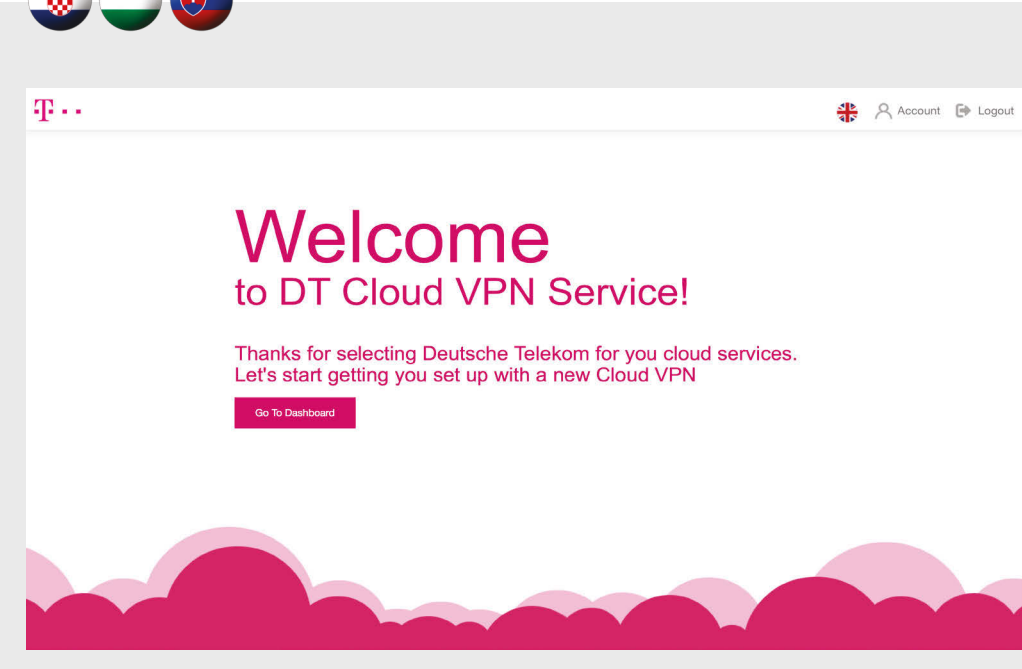


- **Cloud gaming** with premium catalog of casual and bestseller games
- Hundreds of games just out of cloud with no console



MWC 2015: NEXT GENERATION VPN

- First B2B product introduced at the same time in three countries
- Next generation DATA Virtual Private Network (VPN) for secure national and international communication



The screenshot shows a web interface for Deutsche Telekom's Cloud VPN service. At the top left, there are three circular icons representing the flags of Croatia, Hungary, and Serbia. The main content area has a white background with a pink 'T' logo in the top left corner. The text reads: 'Welcome to DT Cloud VPN Service! Thanks for selecting Deutsche Telekom for you cloud services. Let's start getting you set up with a new Cloud VPN'. Below this is a pink button labeled 'Go To Dashboard'. In the top right corner of the interface, there are links for 'Account' and 'Logout'.

DELIVERING A VPN SOLUTION FROM THE PAN-EUROPEAN CLOUD
developed in less than 6 months

AUTOMATIC PROVISIONING
of system components in a few clicks

SIMPLICITY AND SELF MANAGEMENT
of all aspects of the network
(speed, security, no of branches, traffic...)

CARRIER GRADE SECURITY
for all your branches and remote users
by the same strong security mechanisms

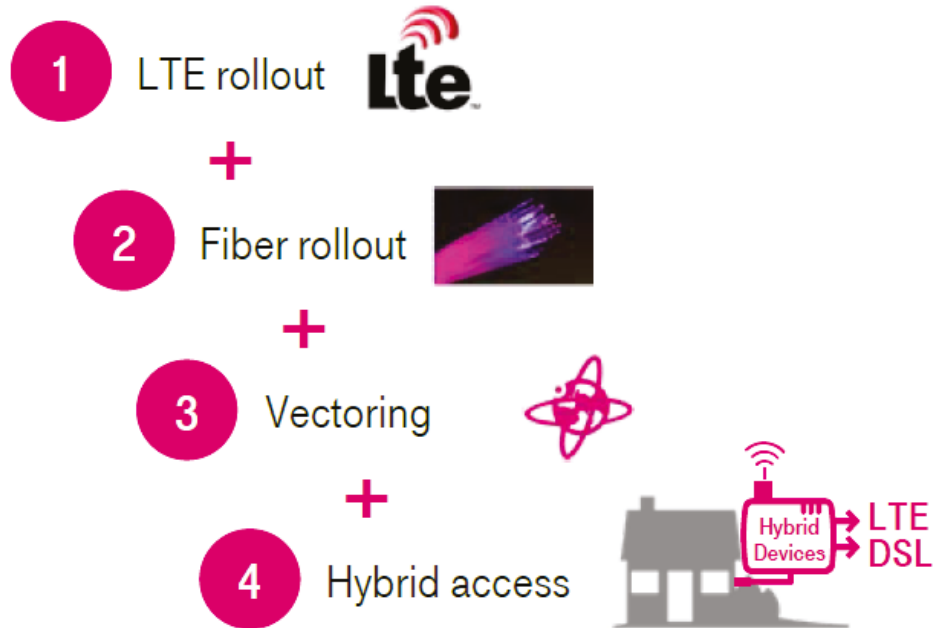
INTEGRATED NETWORK STRATEGY

ALL IP

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RECAP CMD 2012



OUR ENHANCED AMBITION 2015-2018

INS OUR ROLE MODEL

INS rolled out across DT EU and DE

COVERAGE EXPANSION 2015-2018

Mobile LTE¹: **DE:** from 80% to 95% pop-coverage (with up to 300 Mbps)

EU: from 30%-79% to 75%-95% pop-coverage (with up to 300 Mbps)

Fixed: **DE:** $\approx 80\%$ of households ≥ 50 Mbps depending on regulatory adjustments (introduction of Supervectoring with more than 250 Mbps in cable footprint)

EU: $\approx 50\%$ of households² ≥ 100 Mbps ($\approx 12\%$ of households² with up to 500Mbps³)

Hybrid: **DE:** Download speed of up to 550 Mbps in cable footprint

TECHNOLOGY EVOLUTION

Mobile: Evolution via LTE-Advanced towards 5G

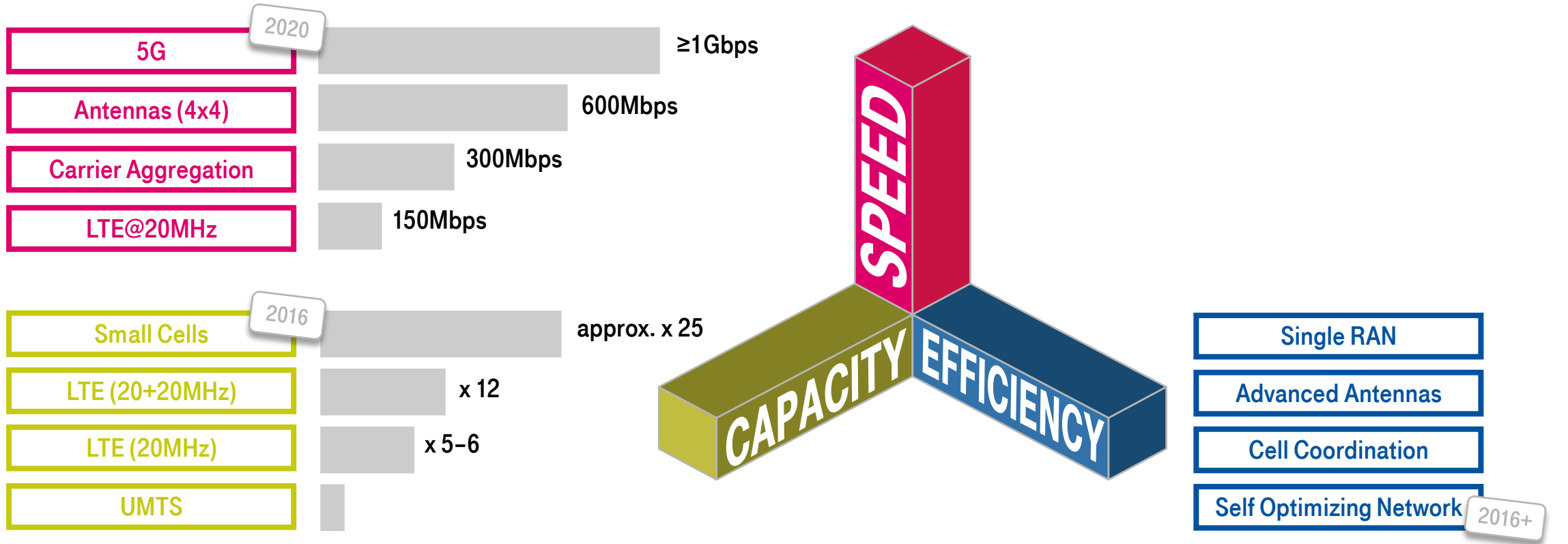
Fixed: Vectoring live, Supervectoring + G.fast next

LTE leadership in DE, GR, HU, HR and SK

¹ Outdoor coverage ² In integrated footprint ³ FTTH, FTTB, FTTC, cable/ED3 (cable, esp. in Hungary with Euro-DOCSIS)

MOBILE EVOLUTION CONTINUES

MOBILE NETWORK UPGRADE OPTIONS



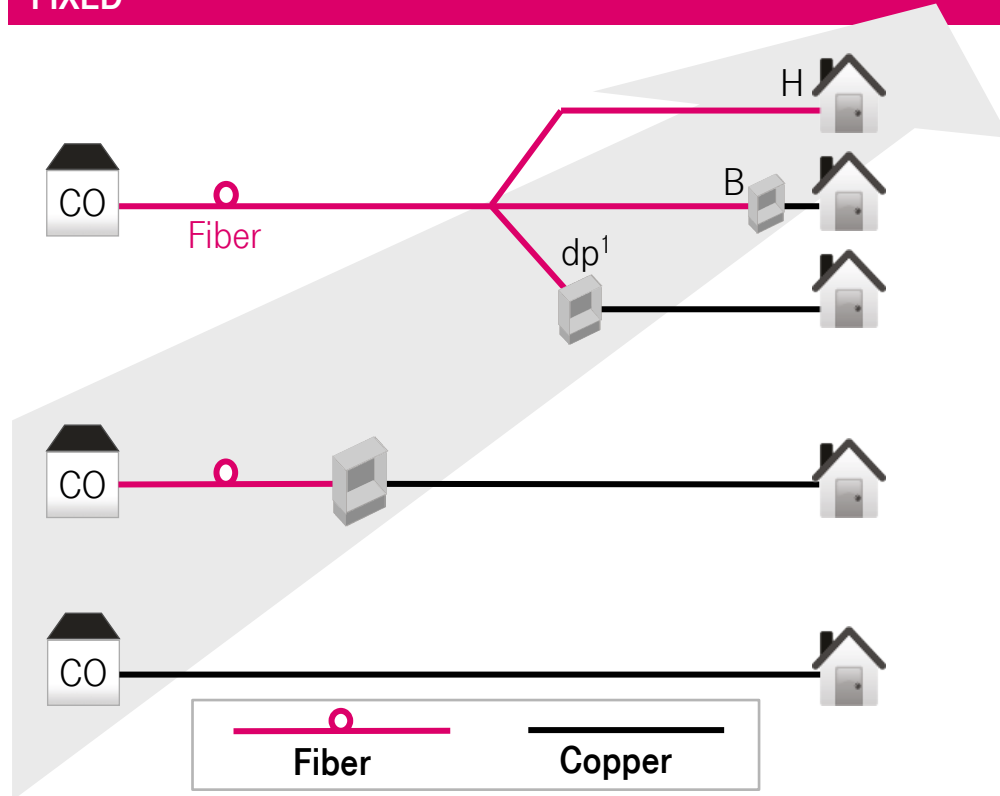
FIBER EVOLUTION CONTINUES

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FIXED



FTTH

1000+ Mbps

FTTdp¹/FTTB – G.fast

up to 500 Mbps

≥ 2018

FTTC – Super VDSL-Vectoring

with more than 250 Mbps

FTTC – VDSL-Vectoring

up to 100 Mbps

≥ 2017

ADSL2+

up to 16 Mbps

¹ "Distribution Point", so far not part of the Telekom access network

SUPERIOR PRODUCTION MODEL DRIVING CUSTOMER EXPERIENCE

ALL IP

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Examples

ULTIMATE APP

- All service and usage relevant information at glance
- Proactively offering data plans following customer usage patterns
- One-click payment for all fixed and mobile services



BROADBAND ON DEMAND

- Plug & play
- Self service solutions
- Instant provisioning of new features



CLOUD TV & GAMING CLOUD VPN

- Perceived “Zero” latency
- Products introduction in a few weeks across entire footprint



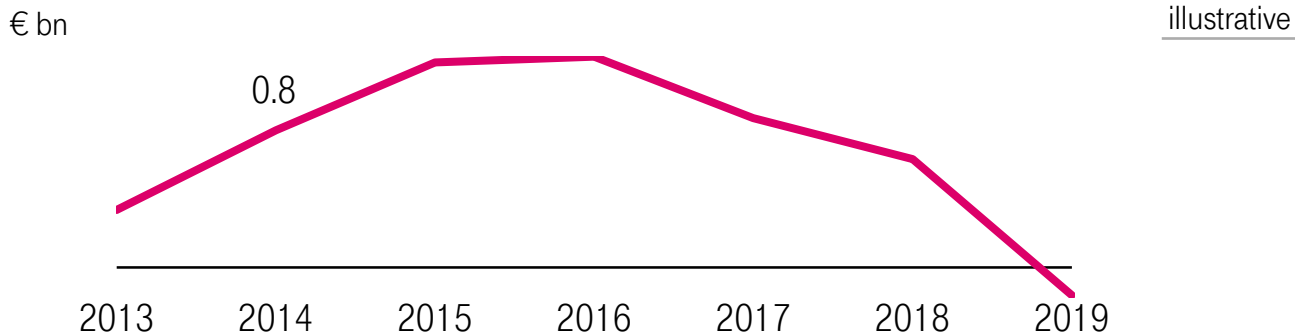
HYBRID ROUTER

- Boost bandwidth in fixed and mobile networks for even better customer experience



SIGNIFICANT INVESTMENTS INTO TRANSFORMATION YIELD SUPERIOR DIFFERENTIATION AND COST SAVINGS IN THE FUTURE

OPEX AND CAPEX: DIGITAL TRANSFORMATION, IP TRANSFORMATION, PAN-EUROPEAN NETWORK¹



CAPEX: INS NETWORK



BENEFITS STEADY STATE FROM EARLY 2020IES

FIN. BENEFITS: ≈ €1.2 BILLION OPEX SAVINGS²

- Segments
 - ≈ €0.7 bn Germany
 - ≈ €0.5 bn Europe
- Functional Areas
 - ≈ €0.4 bn Technology / Platforms
 - ≈ €0.8 bn Service

COMMERCIAL BENEFITS

- Enlarged fiber and LTE footprint and increased bandwidth for customers
- Faster time to market
- Easy to partner

¹ Excl. special factors. Measure related effects incl. savings. PanNet w/o transport & access. INS Opex in German fixed network also included.

² Gross measure-related steady state Opex savings early 2020ies GER/EU vs. 2013, after accomplished IP and process-/e-transformation as well as PanNet (w/o transport & access) before any counter effects (e.g. personnel cost increases).



MID TERM AMBITION LEVEL

MID TERM AMBITION LEVEL

ALL IP

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	MID TERM AMBITION LEVEL	YEAR
ALL-IP TRANSFORMATION	<ul style="list-style-type: none"> All integrated countries 100% IP-based 	2018
PAN-EUROPEAN NETWORK	<ul style="list-style-type: none"> Backend and frontend data center set up Geo-redundant Network Operations Centers established Services fully migrated to PanNet 	2018 2018 2018
INTEGRATED NETWORK STRATEGY	<ul style="list-style-type: none"> LTE pop-coverage Germany & Europe: 75%–95% Germany: $\approx 80\%$ Fixed high speed internet HH coverage ≥ 50 Mbps¹ Europe: $\approx 50\%$ Fixed high speed internet HH coverage ≥ 100 Mbps 	2018 2018 2018

¹ Depending on regulatory adjustments

DEMONSTRATION

1

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ALL-IP MIGRATION



- Factor of miniaturization: 2,600x
- New IMS rack vs. legacy PSTN/ISDN cabinet

Presented by:

Claudia Nemat, Board member for Europe and Technology

2

ALL IP

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HYBRID ROUTER



- Significant increase in down- and upload speed
- Bonding of fixed and mobile connectivity

Presented by:

Bruno Jacobfeuerborn, Group CTO

3

ALL IP

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UPGRADED STREET CABINET



- VDSL-Vectoring rollout
- Upgraded street cabinet with new active technology (MSAN) complementing the old passive patch board

Presented by:

Guido Menzel, Head of Network Engineering Germany

4

ALL IP

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BNG + INSTANT PROVISIONING



- Simplification of network architecture
- Instant provisioning enhances customer experience

Presented by:

Bruno Orth, Head of Network Architecture Germany