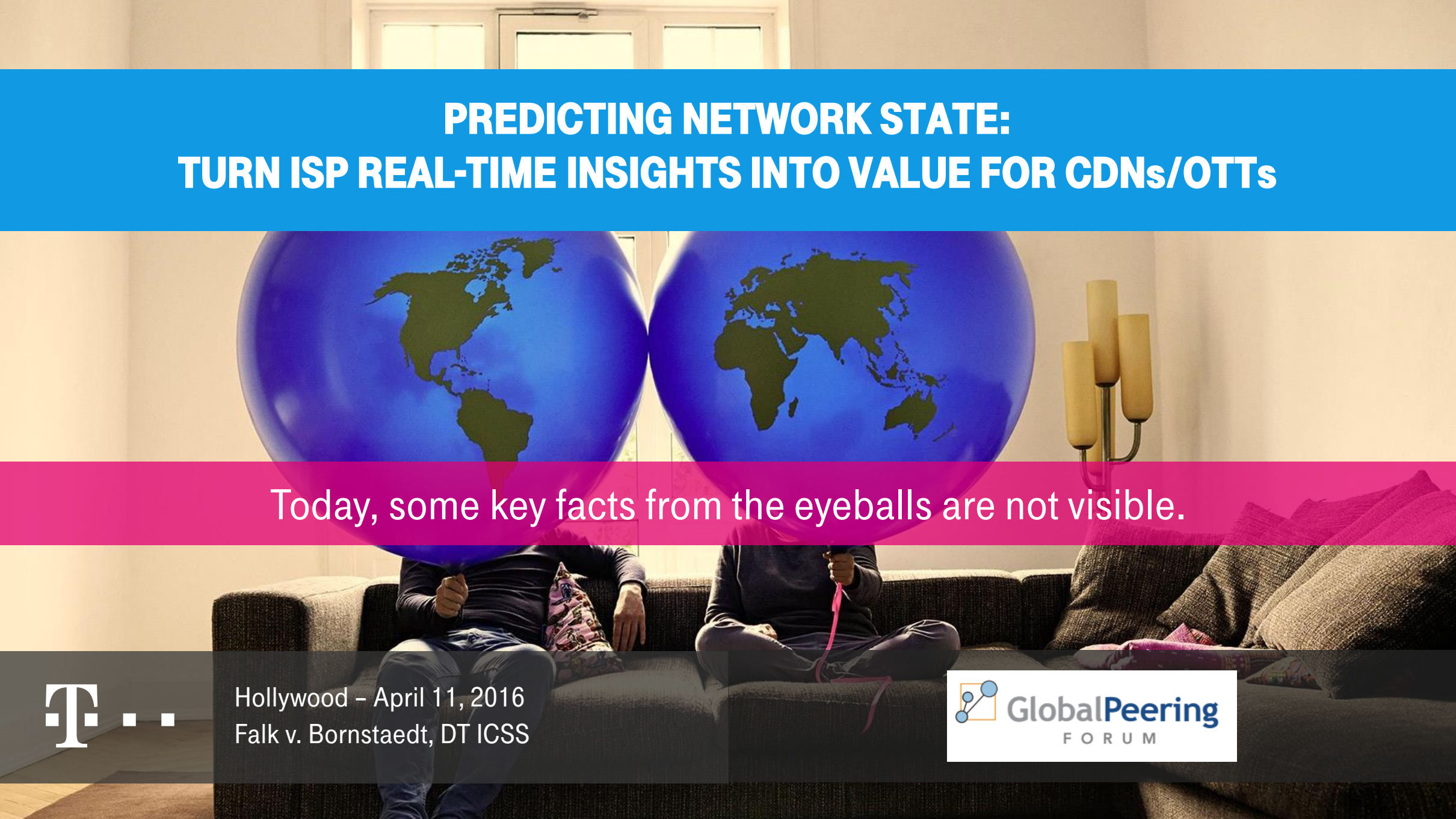
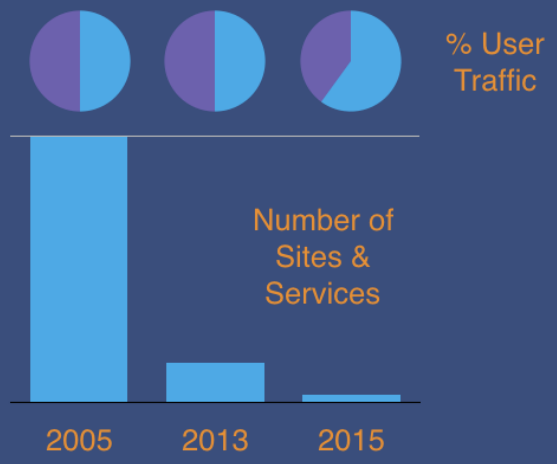
PREDICTING NETWORK STATE:
TURN ISP REAL-TIME INSIGHTS INTO VALUE FOR CDNs/OTTs

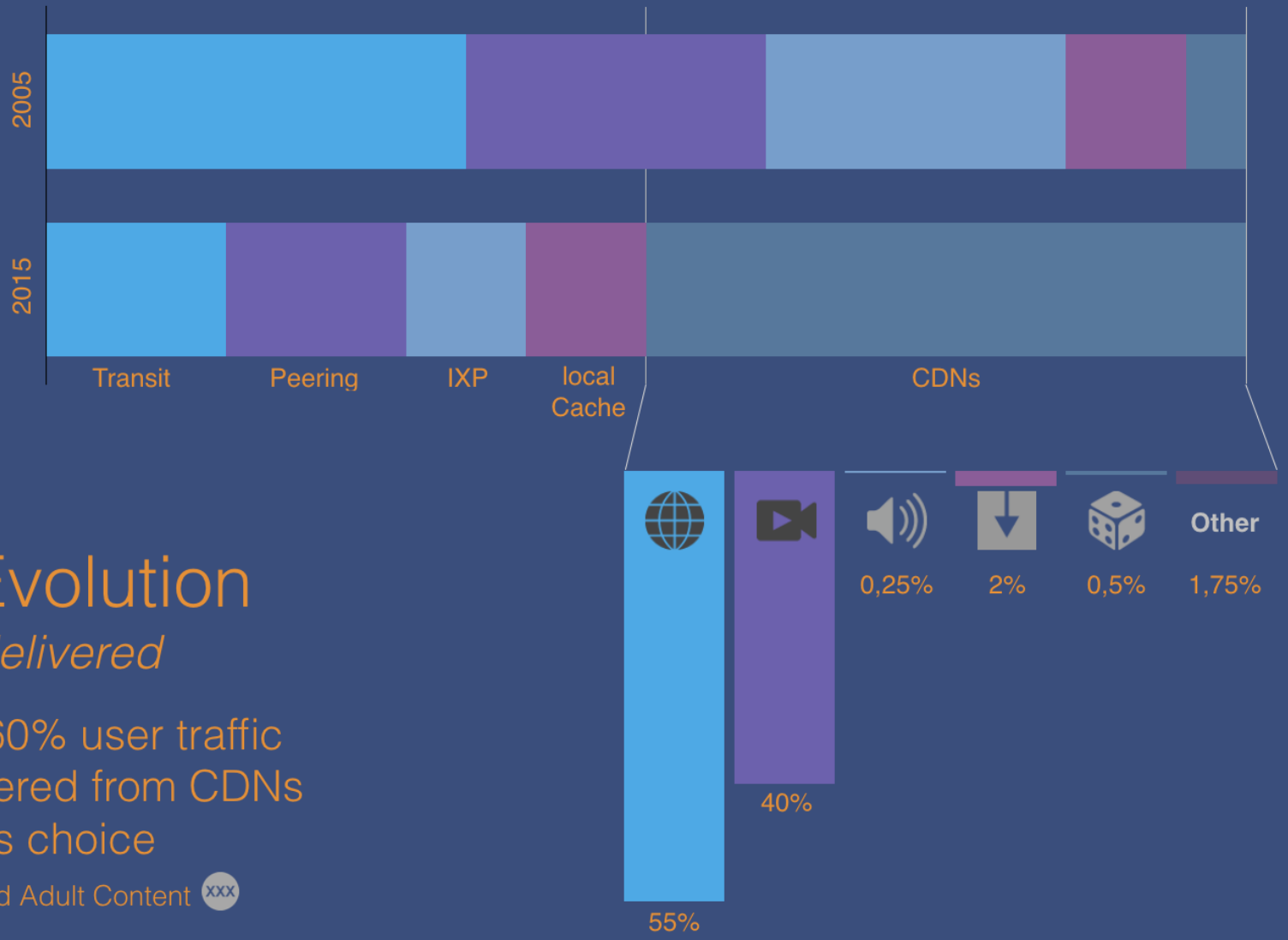


Today, some key facts from the eyeballs are not visible.

Hollywood – April 11, 2016
Falk v. Bornstaedt, DT ICSS

GlobalPeering FORUM



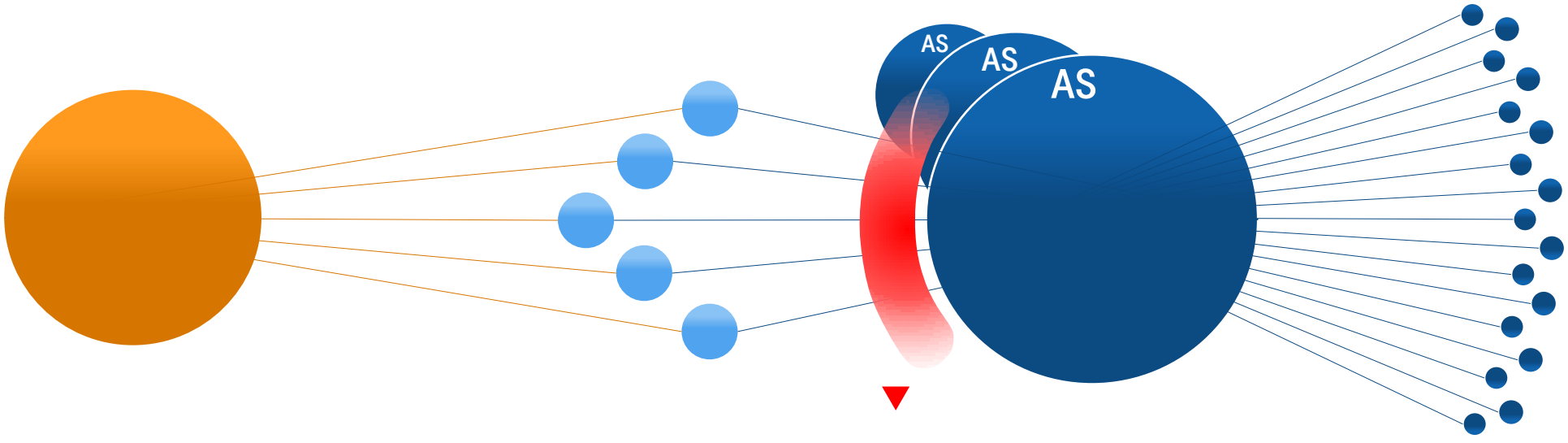


Internet Usage Evolution

and how content is delivered

- Today 30 sites generate 60% user traffic
- High Value Traffic is delivered from CDNs
- IXPs are Game-Publishers choice
- Transits deliver “Other” and Adult Content XXX

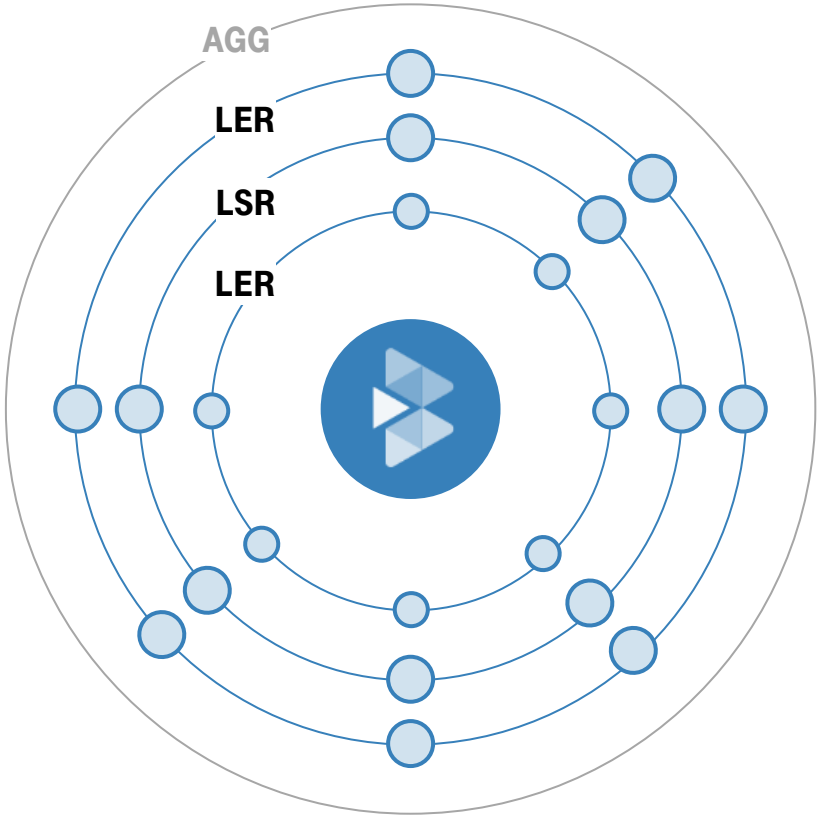
IN THE INTERNET AGE, DELIVERY IS STILL UNPREDICTABLE!



INTERNET FLAW TODAY:
50% of CDN cache selections are suboptimal and hurt QoE

Today, Internet content deliverers can only react retrospectively – when the quality damage is done already.

ANALYTICS: INNERMOST NETWORK PARAMETER COLLECTION



PROTOCOL	SCOPE	VOLUME
DNS	A, AAAA, CNAME information - Being prepared -	
SNMP	Collecting — counters on ~ —K links, — samples each per day	
NETFLOW	Started with — LERs, then ——, now — LERs	
BGP	Started with — BGP routers, going to —— BGP routers	
IS-IS	— BB Routers ~ ——K BB Links	

–m+ MESSAGES PER SEC AT PEAK

—m COUNTER VALUES PER DAY

–bn RECORDS

–bn RECORDS PER DAY

–bn RECORDS PER DAY

—K SUBNETS

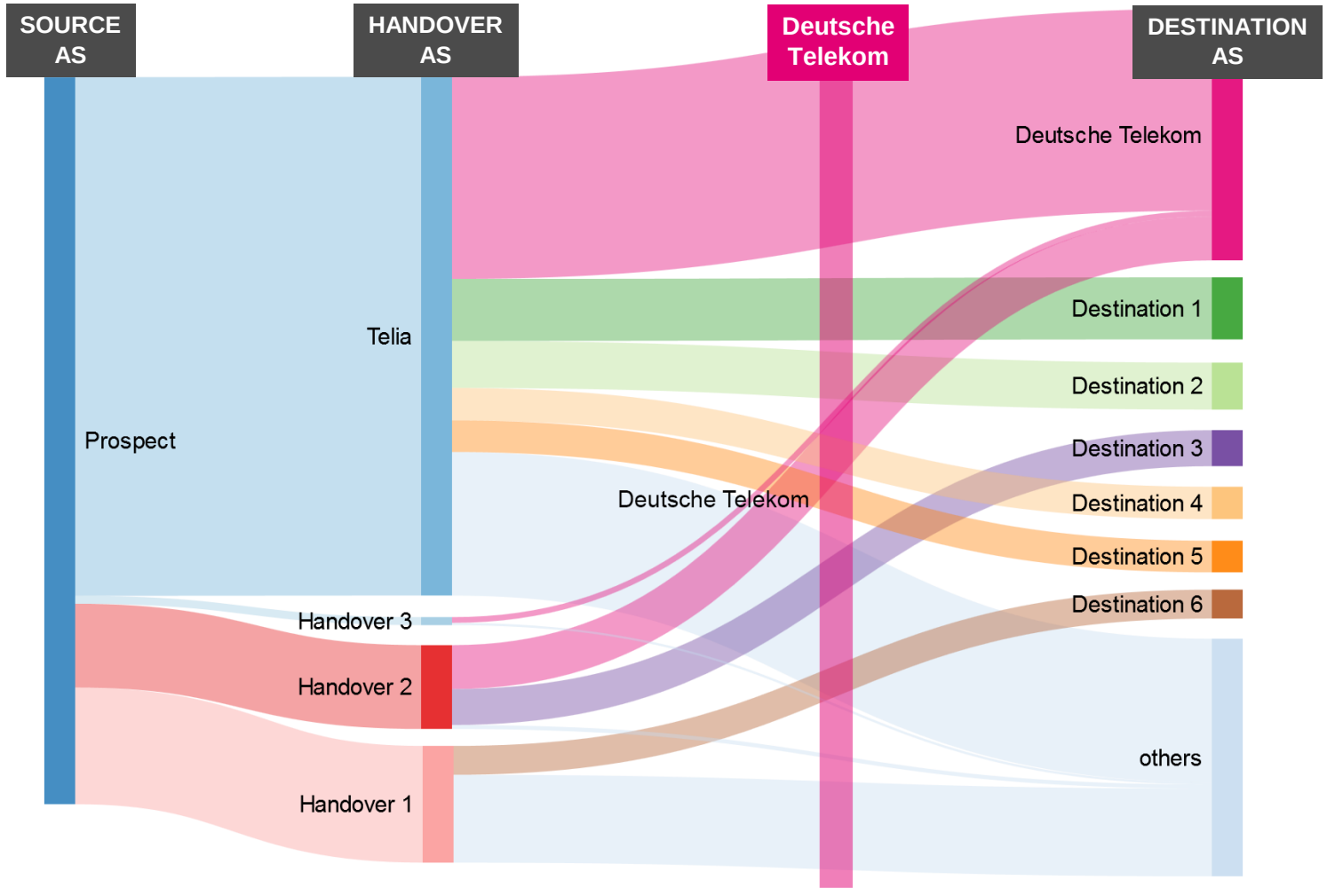
STATE COMPLEXITY VERY HIGH!

NEGLIGIBLE PROCESSING & STORAGE

Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar

2015 2016

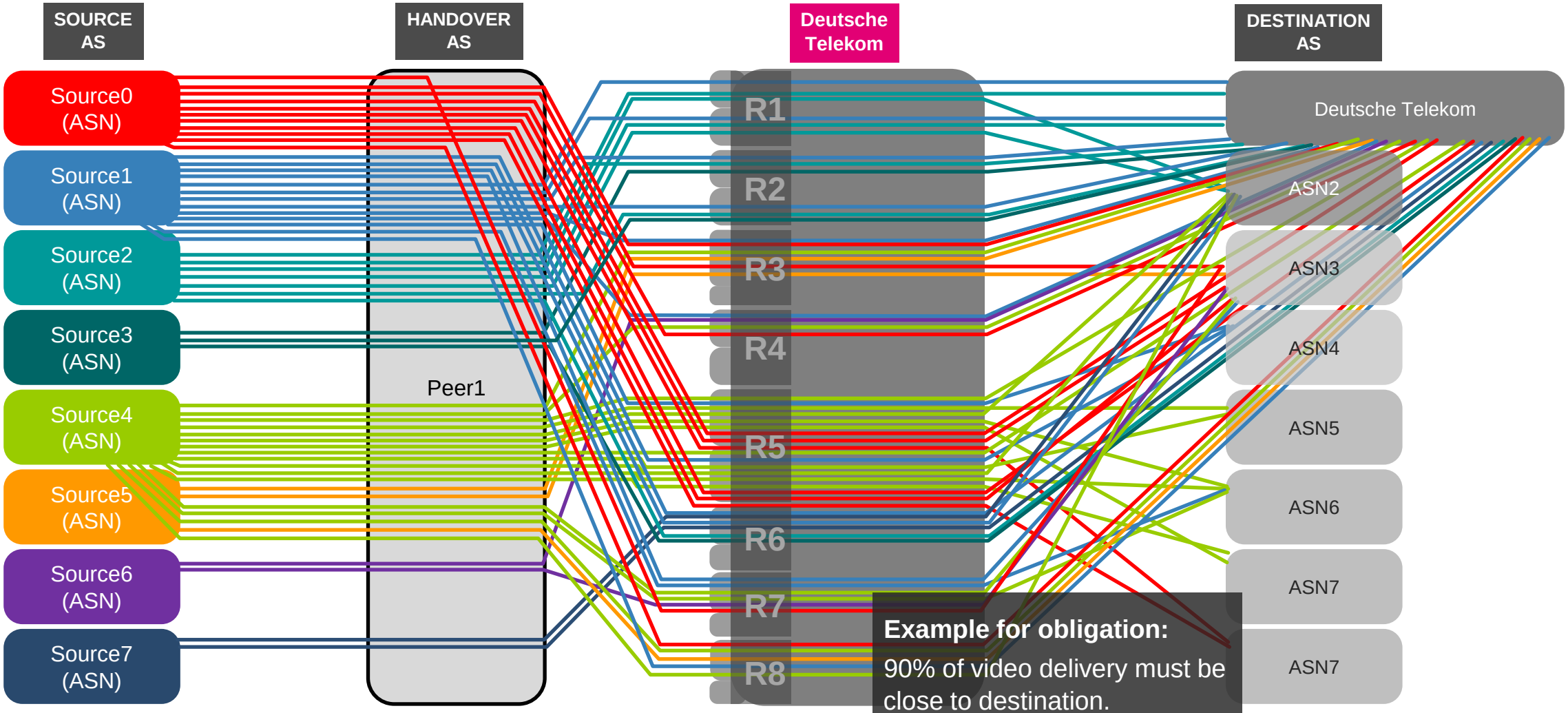
ANALYTICS: PEERING & COMPLEX FLOW INTELLIGENCE



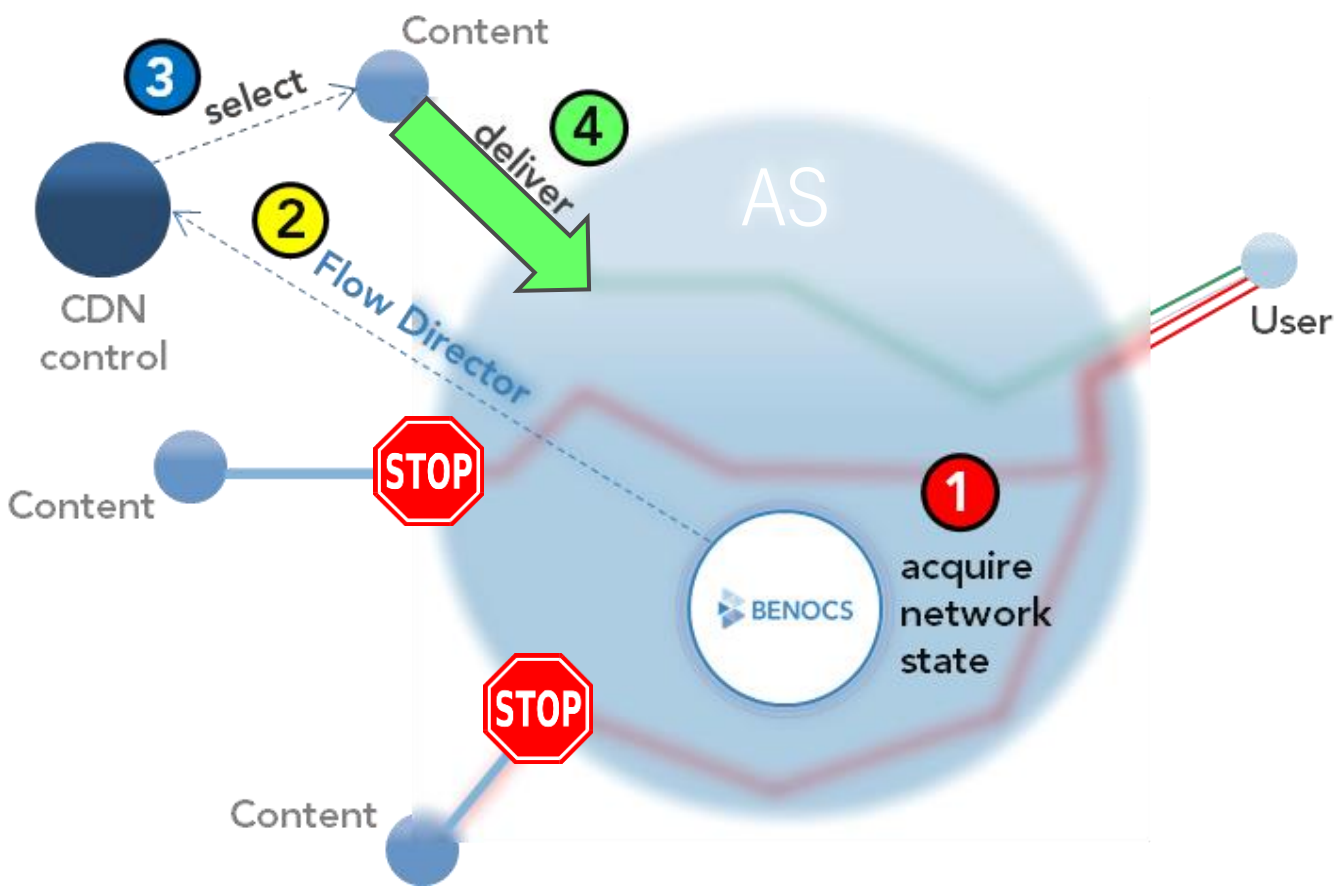
Prospect:
Company XYZ

DT Traffic:	xxxx Gbps
MoM growth:	25%
Monthly revenue opportunity:	xxxxx,xx €
Proposed interconnection interfaces:	F, AMS

ANALYTICS: AUTOMATED MONITORING OF CONTRACT OBLIGATION



ALTO: DT LEVERAGES OWN NETWORK INSIGHTS FOR CDNs/OTTs – TO OPTIMIZE PERFORMANCE/QUALITY & COST EFFICIENCY

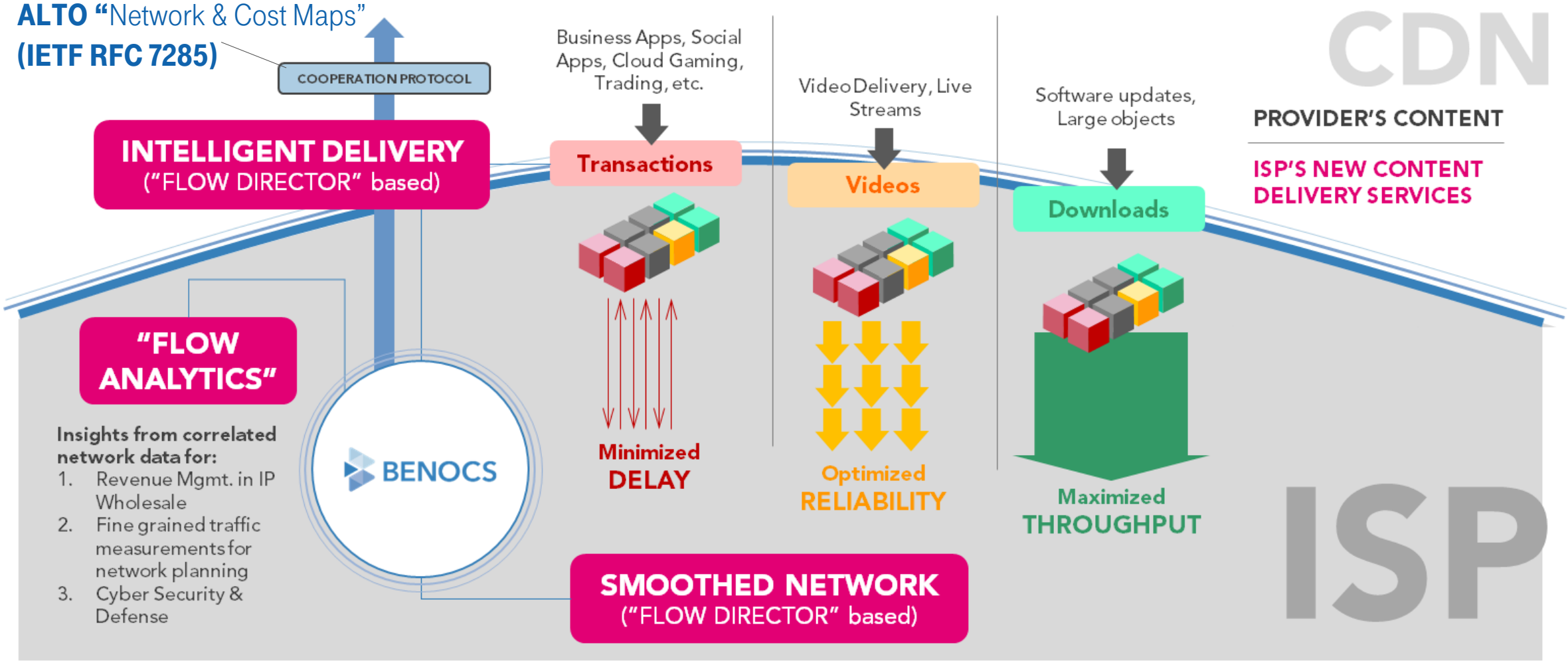


1. DT maintains a real-time map of its own network & capacities
2. Network state information is offered as predictive ALTO maps to 3rd party CDNs & OTTs – on a real-time request basis
3. CDNs/OTTs know BEFOREHAND
4. on which paths to go and on which not to.

→ SIGNIFICANT END-USER QUALITY IMPROVEMENTS (E.G. DELAY ↓)

→ NETWORK EFFICIENCY GAINS (PEAK UTILIZATION ↓)

ALTO: VALUE-ADD SERVICES IMPROVING TOP & BOTTOM LINE



A NEW, FORWARD-LOOKING INTERFACE FOR CDNs/OTTs BY DT

WHY IS DT OPENING UP?

- Too restricted & reactive in the past – now we are **proactive**
- We have had **significant learnings** about own network and CDN/OTT content delivery flows
- **Together is the way forward!**

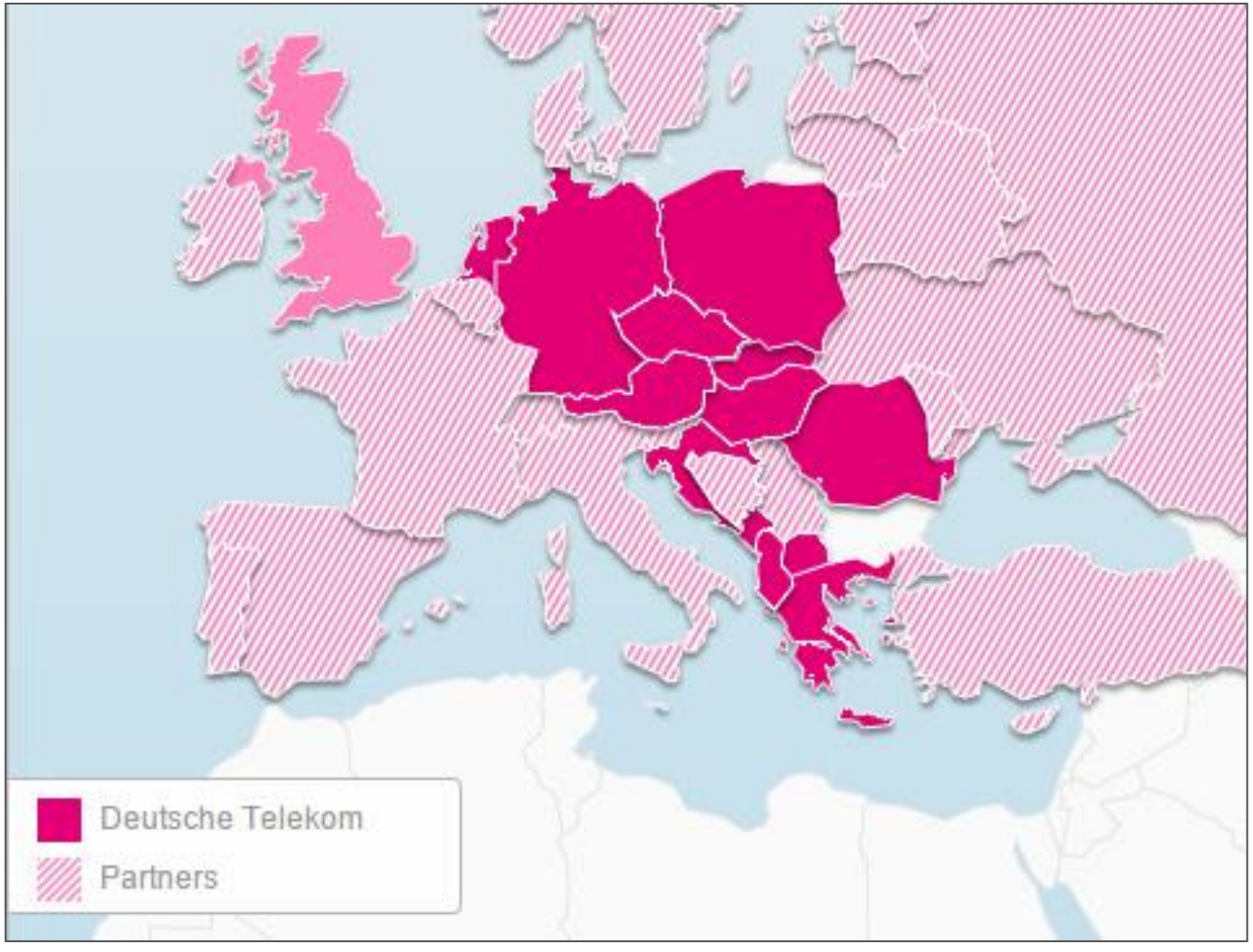
PRODUCT STATUS TODAY

- API is **ready to operate at DT** (available parameters today: Delay & Peering Link Utilization)
- Cooperating with **one large US based CDN**
- Preparing implementation at **a second large Europe based Tier1 ISP**

ROADMAP 2016

- Accepting further trial partners in 2016:
  - **one additional CDN**
  - **one additional ISP**

FURTHER NEXT STEPS: ROLL-OUT ACROSS DT GROUP



5588 GTS Czech,s.r.o.

44651 Com.unique Telekommunikációs Szolgáltato Kft.

29247 COSMOTE Mobile Telecommunications S.A.

8585 Crnogorski Telekom a.d. Podgorica

49044 Digi Slovakia, s.r.o.

5391 Hrvatski Telekom

3340 GTS Hungary Távközlési Kft

58153 GTS Telecom S.R.L.

13046 Iskon Internet

5483 Magyar Telekom

6821 Makedonski Telekom

41313 Novatel EOOD

34594 Optima Telekom

6855 Slovak Telekom

9050 Telekom Romania

8412 T-Mobile Austria GmbH

5588 T-Mobile Czech Republic

31615 T-Mobile Netherlands Holding B.V.

6714 T-Mobile Polska

12917 T-Systems Slovaki

THANK YOU FOR YOUR ATTENTION!
QUESTIONS ?