

# New levels of cooperation between eyeball ISPs and OTT/CDNs.

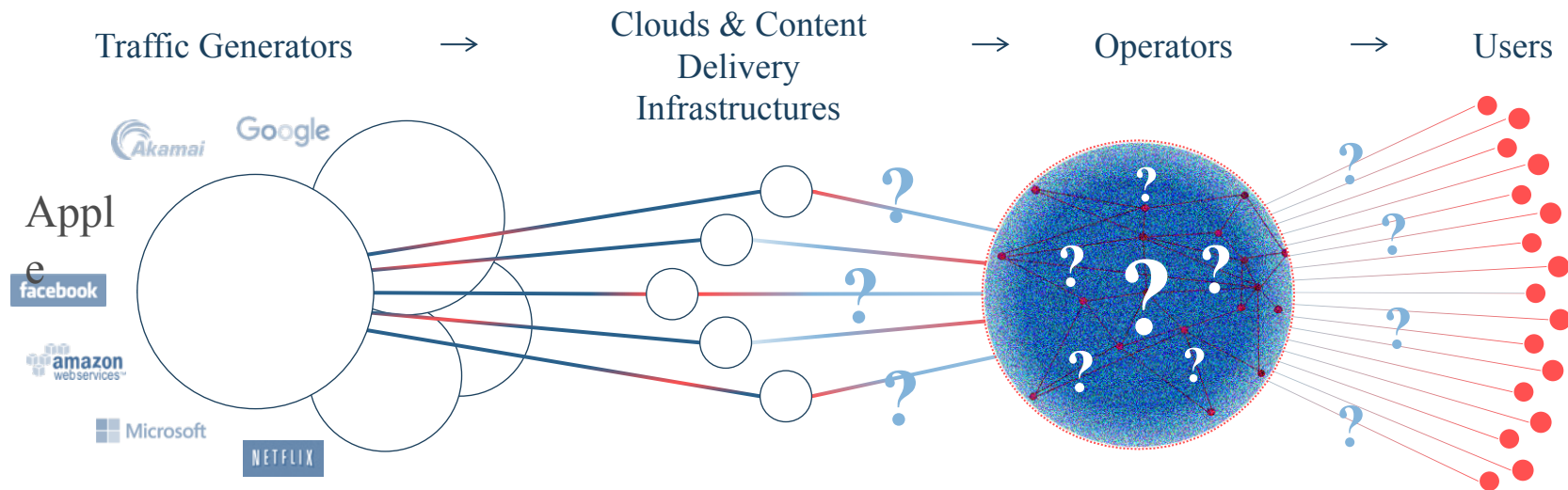
RIPE 75 Dubai – Oct 24, 2017  
Falk von Bornstaedt, DTAG ICSS



LIFE IS FOR SHARING.

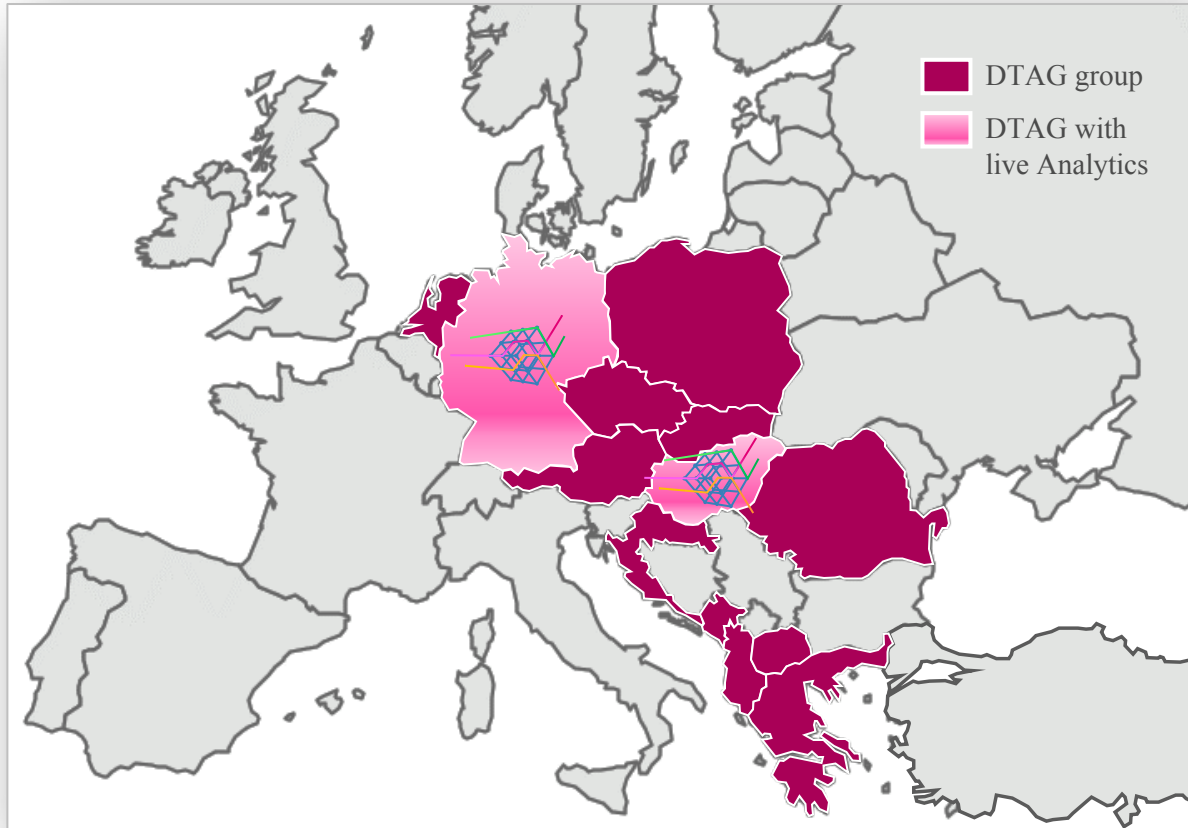


# LACK OF TRANSPARENCY IMPAIRS internet performance



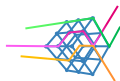
Operators are heavy lifters in the internet delivery chain who face great complexity challenges & **must leverage their traffic flow insights for all.**

# analytics of traffic flows live in 3320, 5483, ... extending



ASN	Live	Company
3320		Deutsche Telekom AG
5588		GTS Czech,s.r.o
44651		Com.unique Telekomunikációs Szolgáltató 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 Slovakia

# Analytics insight provides value to whole ecosystem



Analytics dashboard of

DTAG:

Since Nov 2016

being used by DTAG peering managers

50+

active DTAG Peering & Network Expert Users

★ Single integrated model

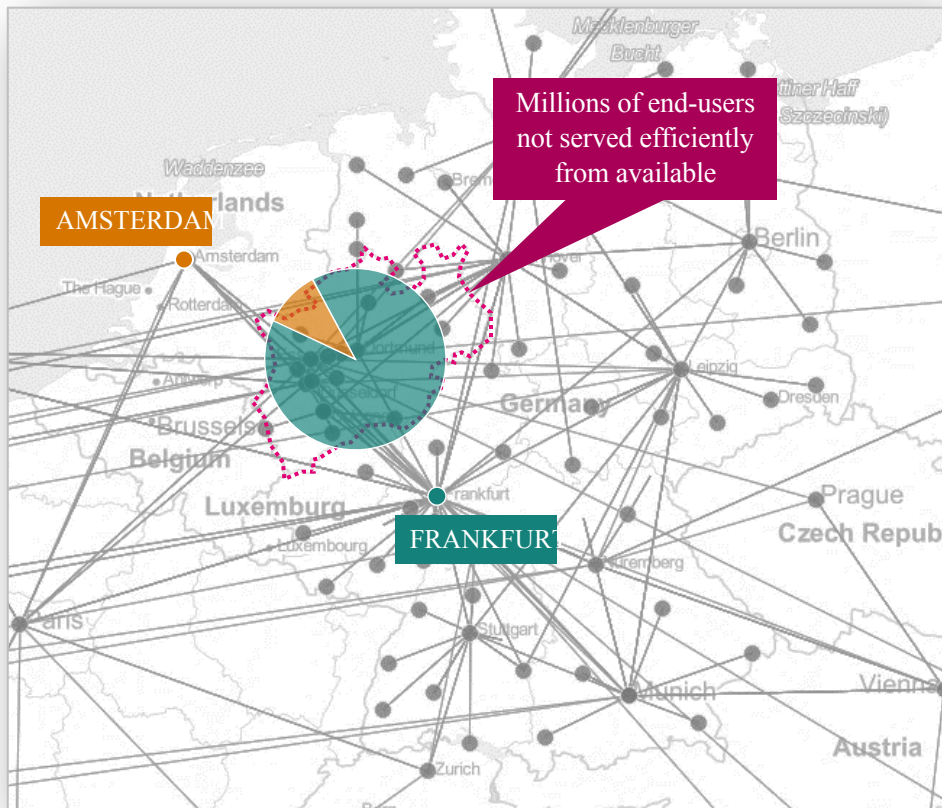
- ☑ Easy terminology for fast understanding.
- ☑ Fast tracking & tracing of prospects.
- ☑ Quick validation of crucial data improves yield management.

★ Group-wide intelligence

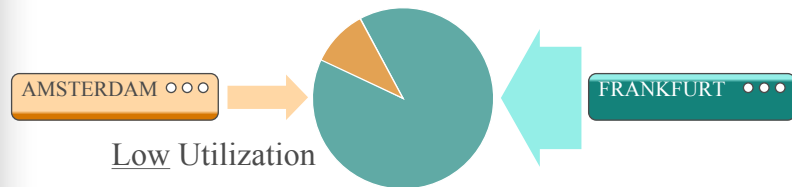
is the vision of DT's Analytics being applied in a multi-domain operator network



# “vision gaps” of Content players have Real effects:



Today: Vision gaps lead to inefficiency 😞

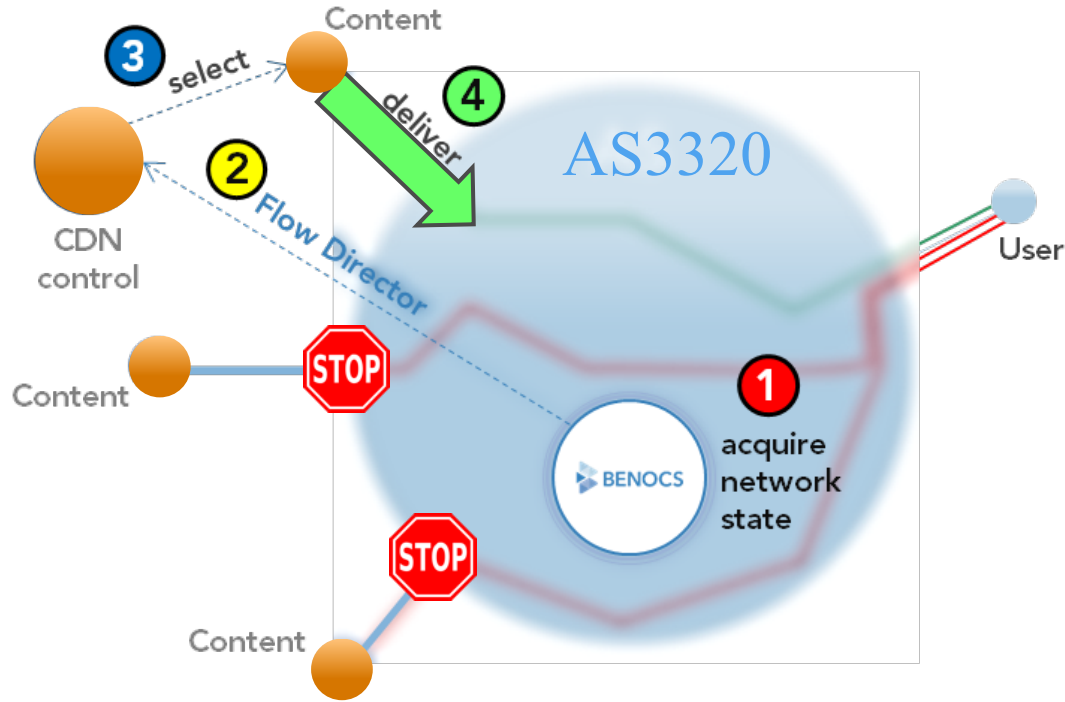


With information from the operator (maps & metrics) .

→ Tomorrow: Optimal resource usage 😊



# Dt Provides “navigation service” to 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 **Maps & Metrics** to 3<sup>rd</sup> party CDNs & OTTs – on a real-time request basis
- 3 4
  - CDNs/OTTs know **beforehand** on which paths to go and on which not to.

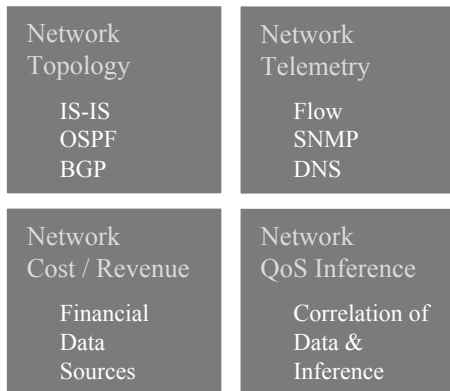
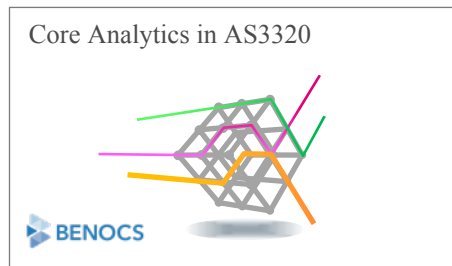
e.g. Delay ↓

→ **SIGNIFICANT END-USER QUALITY IMPROVEMENTS**

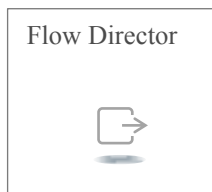
Peak utilization ↓

→ **NETWORK EFFICIENCY GAINS**

# Analytics for Operators; Flow Direction FOR CDNs/OTTs



## From Operators to External CDNs/OTTs:



Can use the service provided by the operator/ASN:

Google	Akamai	Facebook	Netflix
Amazon	Apple	Microsoft	Fastly
LLNW	Level 3	Tencent	...

## Operator Internal Deployment of Analytics:



Can be deployed in networks/ASNs of:

Hurricane	KDDI	KPN	Telia
Liberty Global	Swisscom	Orange	Telefónica
SK	Vodafone	Tata	...

# 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

---

- Analytics running in AS3320 and in AS5483.
- Preparing third Analytics implementation at EU ISP
- Flow Director operational between AS3320 and a global CDN since July 2017
- Second CDN for Flow Director from AS3320 in

## Roadmap 2017 / 2018

---

1. Analytics:
  - Being offered to other interested operators
  - Can be used just internally & Plus Flow Director.
2. Flow Director:
  - AS3320 is open for on-boarding a third CDN

WE CONNECT PEOPLE IN EUROPE

Thank you for your attention!  
Questions ?



# Backup

# aBSTRACT

- Today's Internet traffic is dominated by a small number of big content providers. How they interact with other ASes largely shapes inter-domain routing around the world.
- Operator networks provide the infrastructure that enables these content providers to deliver their traffic to end users. These networks have to accommodate the diversity and volatility of all the traffic of all the different popular content providers. This makes handling the traffic in the most efficient and effective way on a capacity-constrained network a challenging task, yet is crucial to deliver all types of traffic at their individual best performance objectives.
- Content providers have developed systems that aim at working intelligently around the limits resulting from constrained visibility into other network domains and aged protocols (e.g. BGP) to choose paths that meet their performance objectives. However, domains such as operator networks remain "dark" places for content providers with regard to their actual network state thus adding risk to the optimal delivery.
- Operator networks contain crucial state information that would aid content providers in making optimal delivery decisions. Running projects from DT & partners are presented that demonstrate the real potential of integrating measurement-based information about the network into the whole content delivery decision system.