MAPS - and the Enterprises

(MAPS = Microsoft Azure Peering Service)

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Bernd Spiess

About myself: Bernd Spiess

- ➔ in IT since 30+ Years
- ➔ loves Peering
- ➔ Favorite book: “The Internet Peering Playbook”
- ➔ Works for DE-CIX (Presales & Consulting => Peering Team)

Please connect me at:

https://www.linkedin.com/in/bernd-spiess/

DE-CIX at a glance – *the largest carrier & data center neutral interconnection ecosystem in the world*

45
internet & cloud exchanges

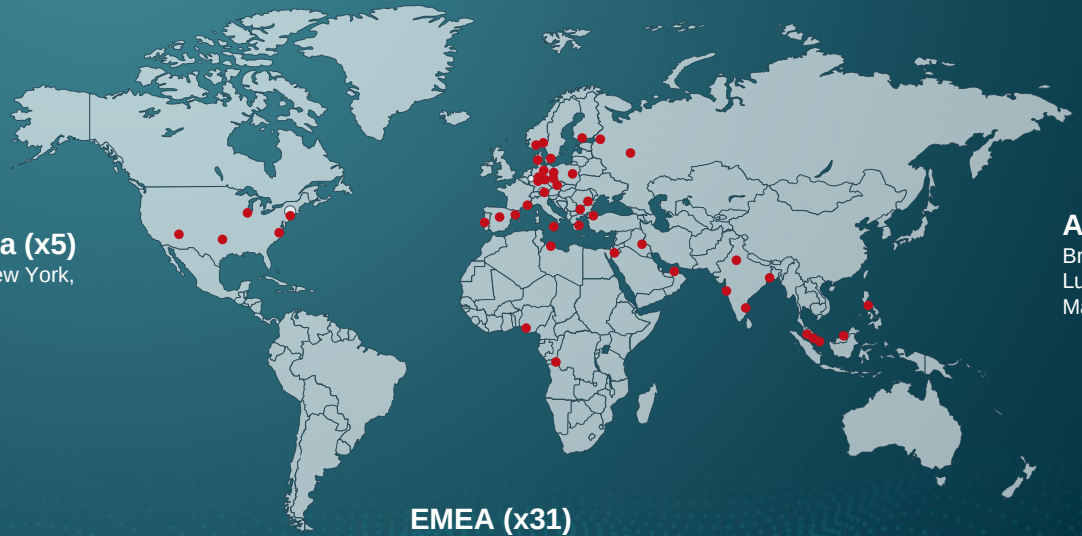
600+
cities

50+
cloud partners

1,000+
data centers

3,000+
connected networks

119+
Tbit capacity



North America (x5)
Chicago, Dallas, New York, Phoenix, Richmond

Asia Pacific (x9)
Brunei, Chennai, Delhi, Kuala Lumpur, Kolkata, Johor Bahru, Manila, Mumbai, Singapore

EMEA (x31)
Aqaba, Athens, Baghdad, Barcelona, Berlin, Bucharest, Copenhagen, Dubai, Dusseldorf, Esbjerg, Frankfurt, Hamburg, Helsinki, Istanbul, Kinshasa, Kristiansand, Lagos, Leipzig, Lisbon, Madrid, Marseille, Munich, Oslo, Palermo, Prague, Ruhr region, Sofia, Tripoli, Warsaw

DE-CIX

www.de-cix.net

Part 2 - MAPS

MAPS means: **M**icrosoft **A**zure **P**eering **S**ervice

Targeting: Enterprises

Hint: no, it is not about Azure

but first let´s go back 1 step…

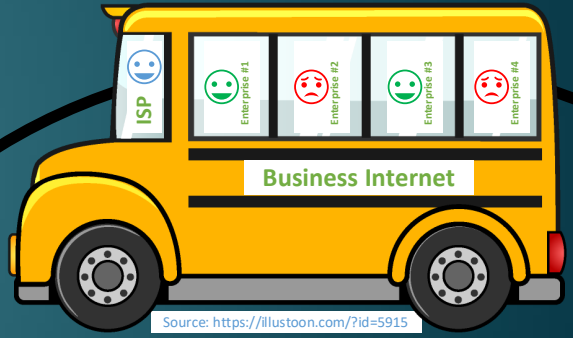
Part 1 – the Enterprises

Theory:

“Todays Internet needs of an Enterprise are far more complex than a standard Business Internet Access is able to deliver.”

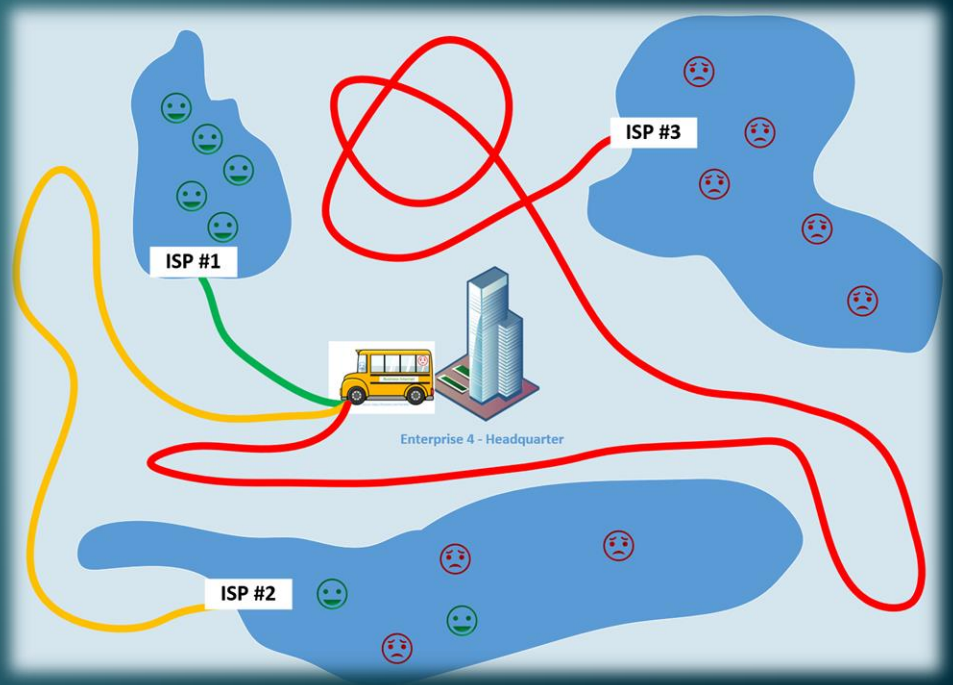
The Question:

- → 75.000 Stops (ASN) = n
- → 1 Driver (ISP)
- → m Passengers (Enterprises)



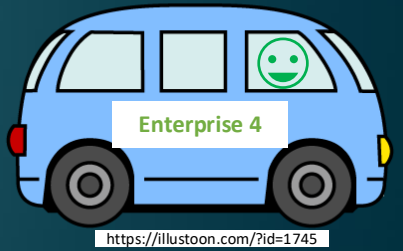
How to manage n potential stops for m different passengers?

The “new” Home Office Challenge:



How does Enterprise #4 reach these 3 Eyeball ASN where their staff is sitting in the home office with VPN & Enterprise IT remote?

The new Reality:

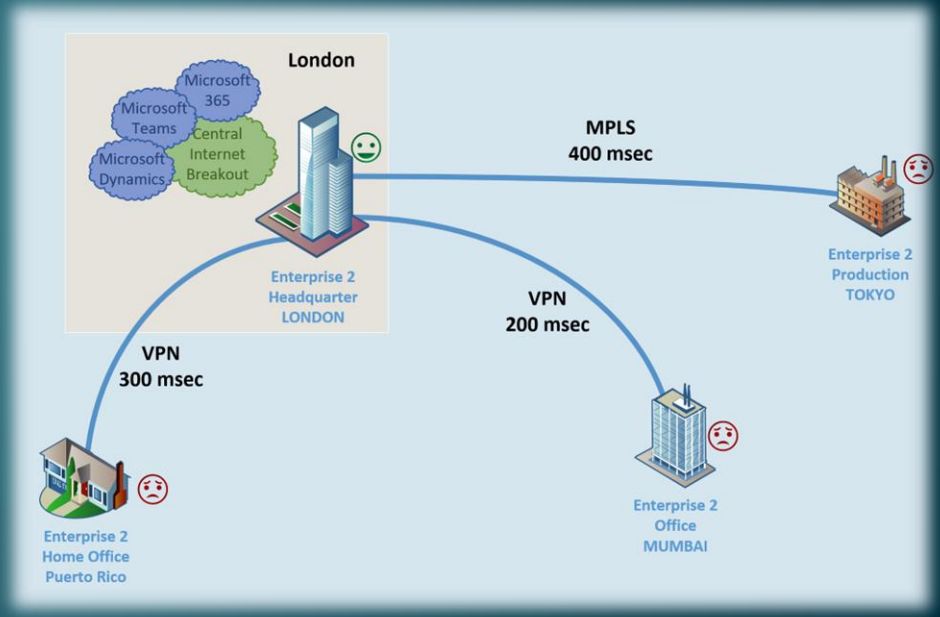


- ➔ Still driving public transport
  But:
- ➔ They bought a car (Router)
  Got a driving license (ASN)
  Drive some important destinations/shortcuts themselves
  Solved their route problems = no waiting, no passenger drops

Enterprises are coming to the IXP

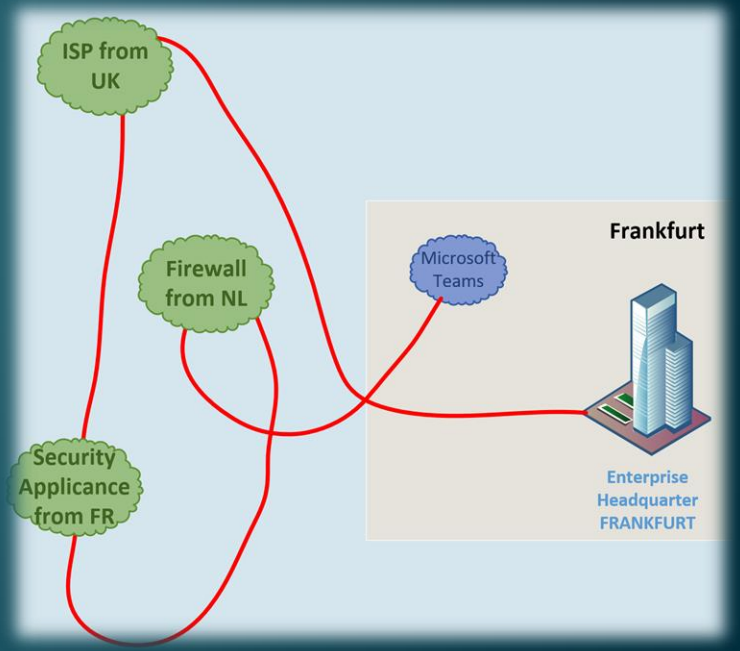
Putting the MAPS topic into the scene …

A historic Enterprise Challenge



HQ-Central Internet Breakout is a global latency troublemaker.

The “funny” Delay Stacking Game



Enterprise Internet Setup is a compromise of various things.

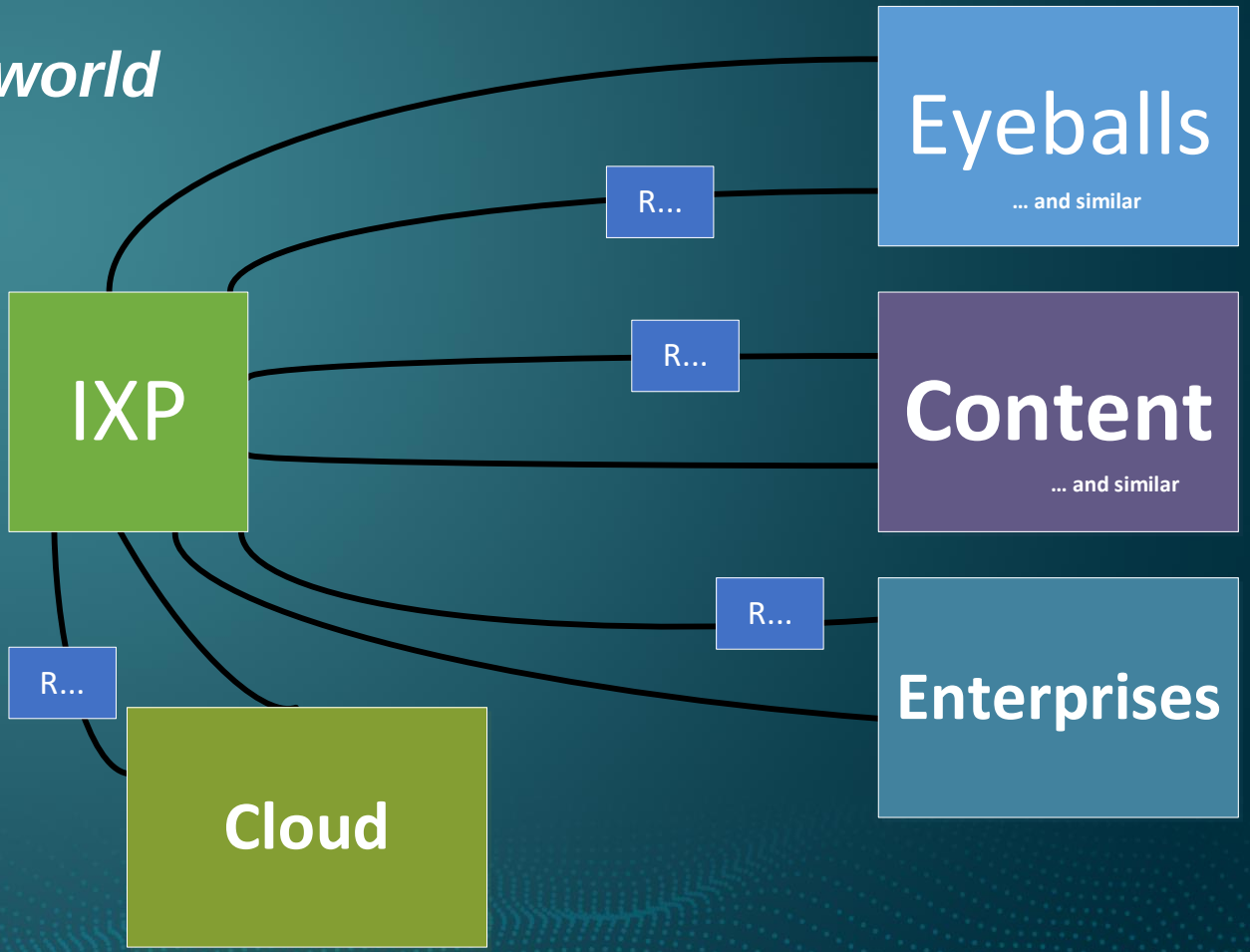
Summarizing Some Enterprise Challenges

- ➔ Applications demanding (Ultra-) Low Latencies
- ➔ Global Stretch of the Enterprise Network
- ➔ Whatever Cloud to be used
- ➔ Home Office Users in whatever ISP´s networks
- ➔ Real Redundancies (Multihoming)

So, the enterprise now comes to the IXP … what now?

The simple old world of IXPs

The new world at IXPs



Some Thinkable Challenges

Old World		Enterprise
all clear	Doing, Setup	nothing is clear
all given	IP, ASN	“can I work with IPv4 of my ISP?”
defined	Peering Manager	what is a peering manager?
standard	Big Router	“What do you mean with two full tables?”
simple	SLA	End to End SLA!
emails a noc team	Random Session down	Full Escalation
a person	Implementation	Many Many Many Teams

Part 2 - MAPS

Some initial Statements:

Microsoft

do not want to peer

with Enterprises

at IXPs

Some initial Statements:

The Enterprises

do have an issue

if a Microsoft Peering Session at an IXP goes down

and they cannot call anyone!

Some initial Statements:

The Enterprises

always needs

an End-to-End SLA backed connection!

Some initial Statements:

Microsoft cannot help

an Enterprise

if the connection to them

is coming via a

random unknown Internet bridge!

Some initial Statements:

There is no

Telemetry Option

for the Enterprise

when not using MAPS.

Some initial Statements:

Microsoft wants to see

the Enterprise Users

in a RTT of max. 10 msec

to their next network edge!

(500 miles, 800 km)

MAPS - simplified

MAPS means:

you peer with Microsoft AS8075 global Network – all Prefixes

The 10 msec Distance Question:

Microsoft wants to see

the Enterprise Users

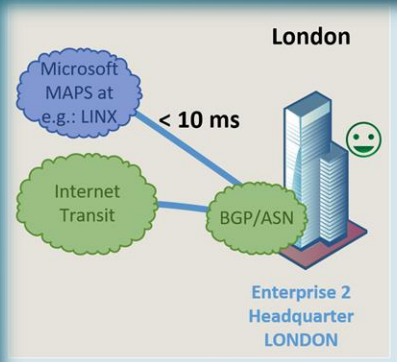
in a RTT of max. 10 msec

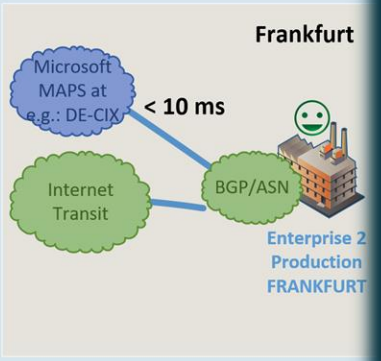
to their next network edge!

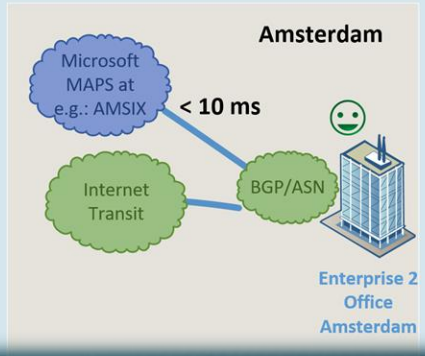
(500 miles, 800 km)

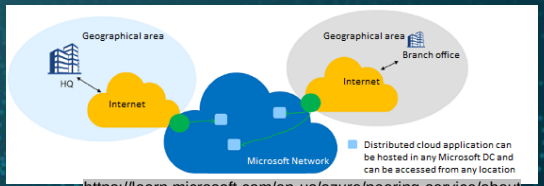
10ms – How?

Bring the different geographical areas of the enterprise separately to the one MAPS onramp which is < 10 msec away!





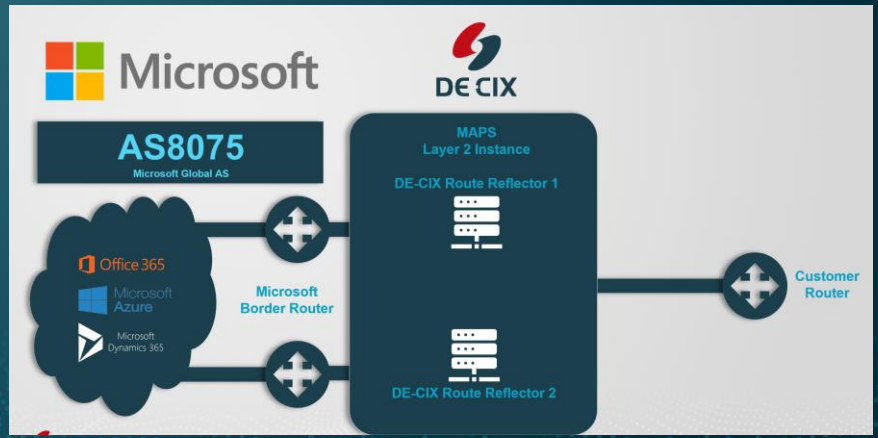




https://learn.microsoft.com/en-us/azure/peering-service/about

… an Important Setup Principle:

- The IXP do have a capsulated peering fabric
- There is a special routeserver setup
- The routeserver pre-peers already with Microsoft
- The Enterprise peers with the (transparent) routeserver.

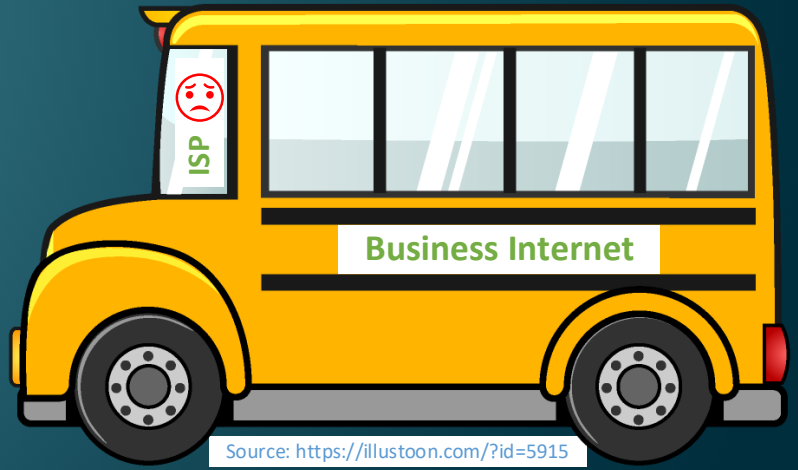


… and the ISP Now Hates Us?

No …

➔ This one delivers the Layer2 circuit from his customer to the MAPS onramp – including SLA

… or: he is a MAPS partner himself



Source: https://illustoon.com/?id=5915

… and Where are the Resellers?

- They have a ton of new options for new services.
- Not every Enterprise do have BGP and ASN => Resellers world!

MAPS: Ihre sichere und schnelle Verbindung zu Microsoft!

TelemaxX Telekommunikation GmbH
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March 1, 2024

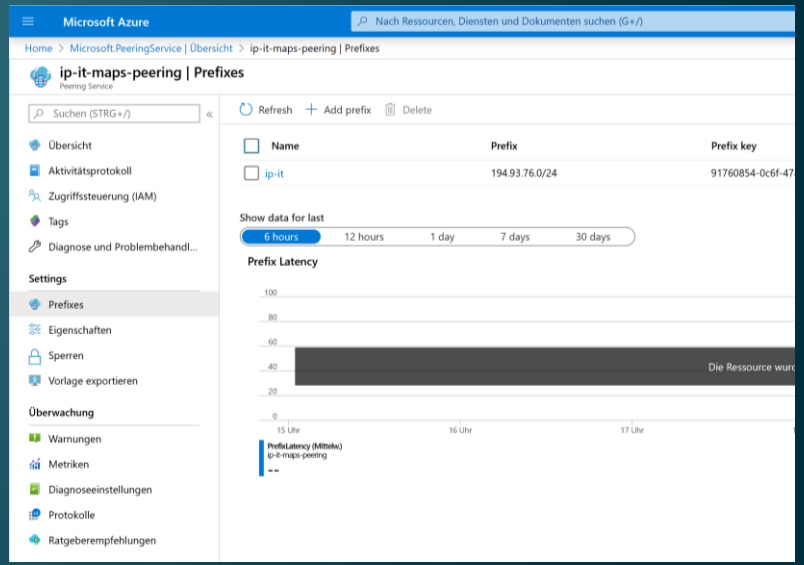
Open Immersive Reader

Eine zuverlässige und störungsfreie Kommunikation ist essenziell im beruflichen Alltag. Deshalb spielt auch die **Anbindung an Cloud-Dienste** wie z. B. zur Azure-Cloud oder zu Microsoft 365 eine wichtige Rolle, insbesondere wenn dort **wichtige Dokumente, Daten oder Anwendungen gespeichert sind.**

Hierfür haben wir eine Lösung: Ab sofort können Sie mit einem Internetzugang in einem unserer Rechenzentren, oder an Ihrem Unternehmensstandort, unseren **MAPS (Microsoft Azure Peering Service)** nutzen. Mit diesem erhalten Sie eine **direkte, private und sichere Verbindung** zu den Cloud-Diensten von Microsoft sowie zu Microsoft 365. Die Umsetzung erfolgt durch ein direktes

… the Telemetry Option?

- ➔ Simply integrated in the Azure Portal!
- ➔ Reference RTT, Alerts etc…



How does it help the Enterprise?

- ➔ The layer2 link will not change its latency!
- ➔ The RTT/latency of the setup is predictable, contractable
- ➔ All components do have End to End SLA
- ➔ The Enterprise can call the IXP 24/7 about the peering from/to Microsoft; Microsoft tickets will find this setup!
- ➔ Telemetry Dashboard in Azure Portal shows details.
- ➔ DDOS safe (all separated)
- ➔ No additional costs on Microsoft side for the Enterprise

Example Graph

Redundancy?

➔ In principle, all components are redundant (=SLA)

But: For the worst case:

➔ As BGP is used, the fallback is the IP-BGP-Transit Setup

➔ The Fallback Transit Provider should have a local IXP or PNI Peering with Microsoft too, this takes over meanwhile.
(no SLA, Telemetry will not see)

What Else? Beside MAPS for Enterprise:

Easy to combine with direct cloud options (via VLAN Trunk)

like AWS Cloud, Oracle Cloud, Google Cloud, MS-Expressroute, AliCloud, …

What Else? Beside MAPS for Enterprise:

Enterprise can peer with other typical important ASNs:

- ➔ Finance ASN like Salesforce, SAP, Stock Exchange, Banks
- ➔ Anti DDOS Specialists
- ➔ Backup to the Cloud Networks
- ➔ ISPs where their stuff do have the ISP-Access.

Some Customer Feedback:

- → 5 msec instead of 50 msec (Hochtief)
- → Dramatic improvement of VPN stability
- → Stable reliable path
- → 60% of traffic did go from transit to Peering/MAPS
- → Much cheaper than existing transit (non-EU)

Thank you for your attention!
Questions: bernd.spiess@de-cix.net

DE-CIX Management GmbH, Lindleystr. 12, 60314 Frankfurt, Germany
Phone + 49 69 1730 902 0, sales@de-cix.net, www.de-cix.net