



University of Zurich

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Virtual Networks on Demand

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Why network(s)?

Bandwidth is only one parameter

Other parameters: Delay, jitter, error-rate, availability

Network: bandwidth + locality

- End-to-end connectivity is the key



Why virtual?

Virtualization = Isolation, flexibility

Virtualization = (transparent) sharing

Sharing physical equipment (fibres/routers) is more cost-efficient

Virtualization at the optical layer is more energy-efficient

- Example: 1/4 of energy consumption compared to routing at higher layer



Why „on demand“?

On demand = reservation?

Guarantees necessary?

- Bandwidth, delay, error-rate, availability

Customer requirements change over time

- Short-time bandwidth allocation for sport events, research
- Dynamic bandwidth allocation for ISPs, ASPs

On demand = Dynamic allocation

- Allow customers and providers to **buy and (re-)sell** bandwidth services for different applications as needed
- Market-based allocation needed? Overhead versus Economic-Efficiency?

What time-scales matter?

- Start-times, duration
- Support the trading of bandwidth **on demand** as well as **in advance**



Conclusion

Bandwidth ~~on~~ demand

=> Virtual Networks on demand !



**Thank you for your attention!
Questions?**

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