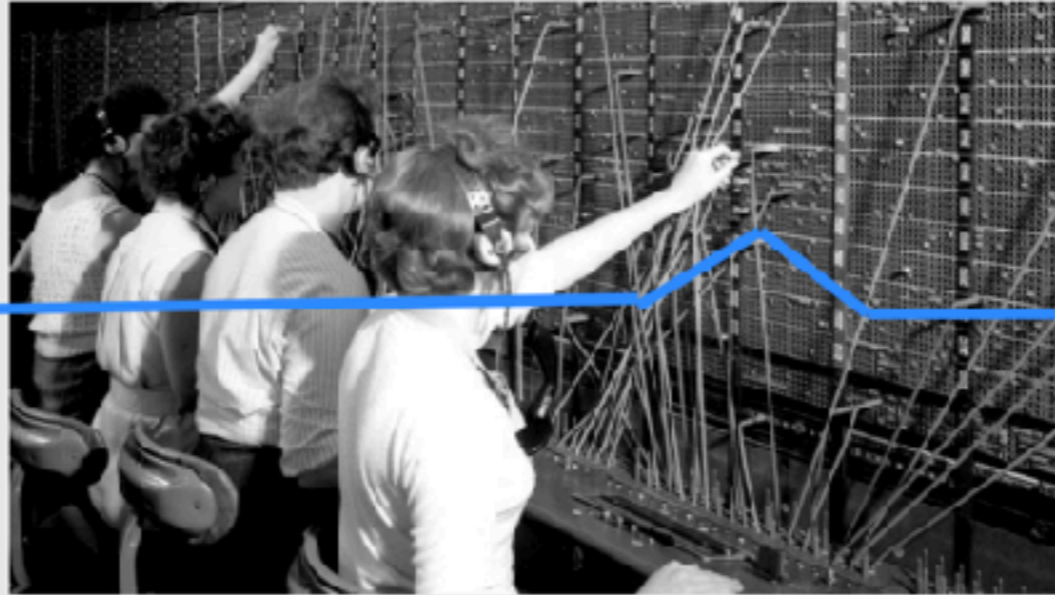


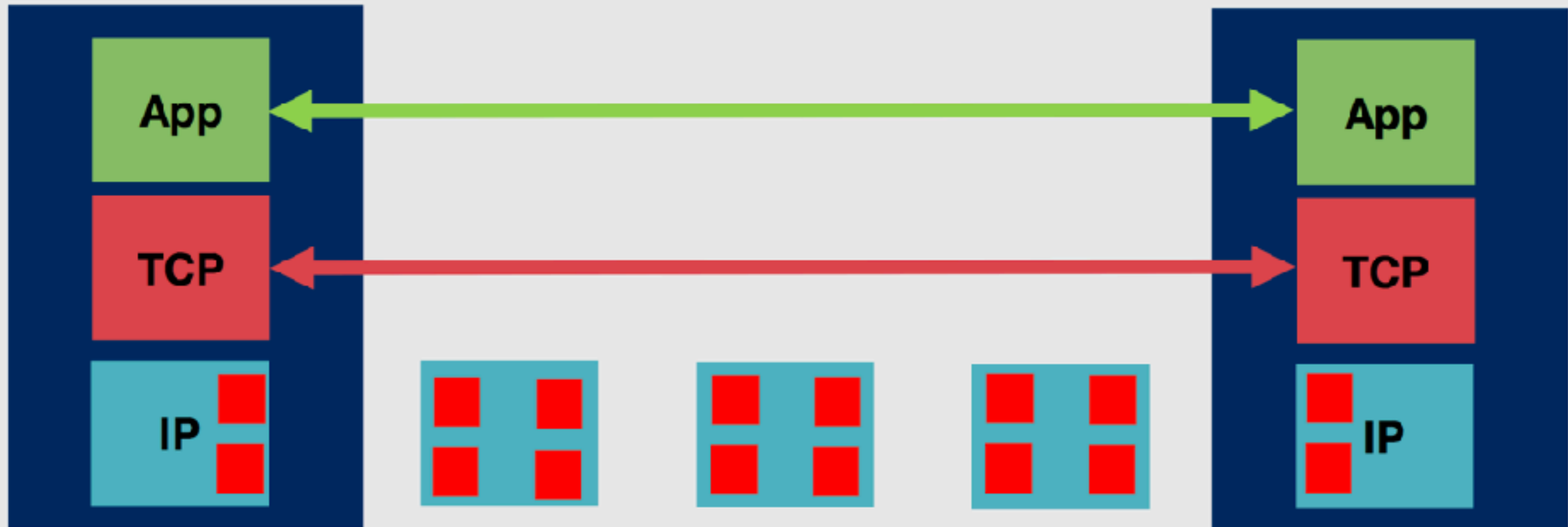
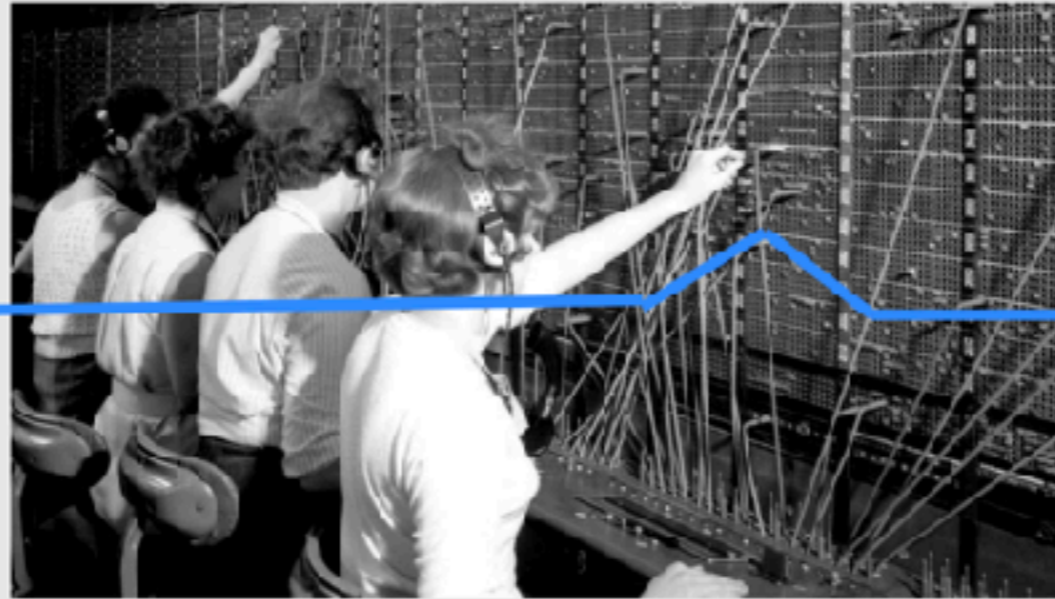
FIT Workshop Panel

Dirk Kutscher

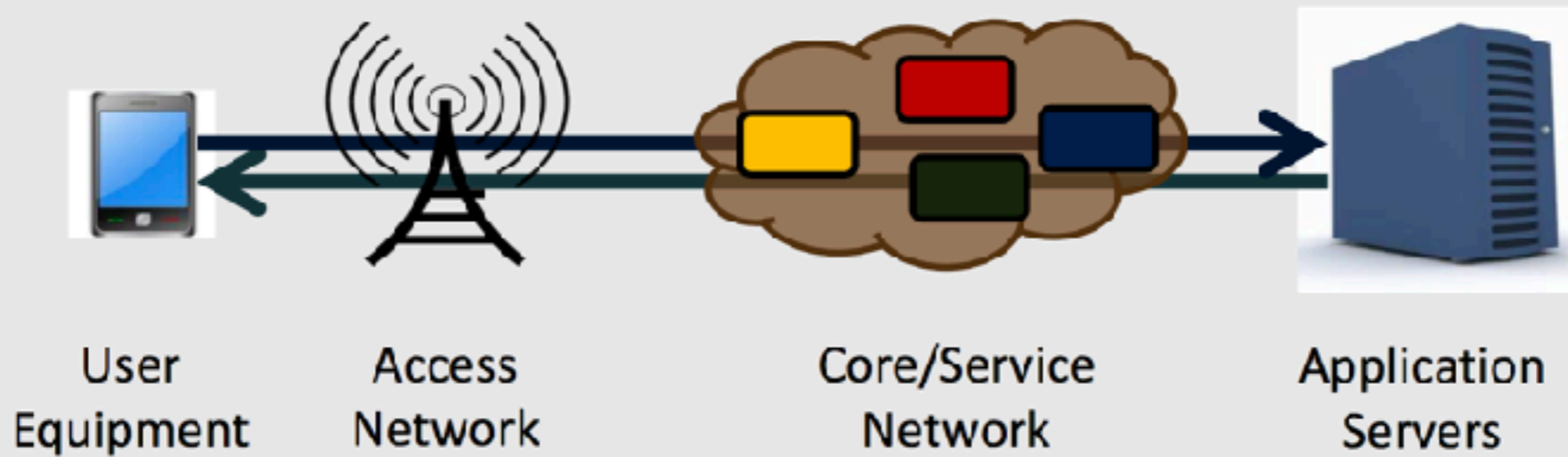
History of (Data) Communication



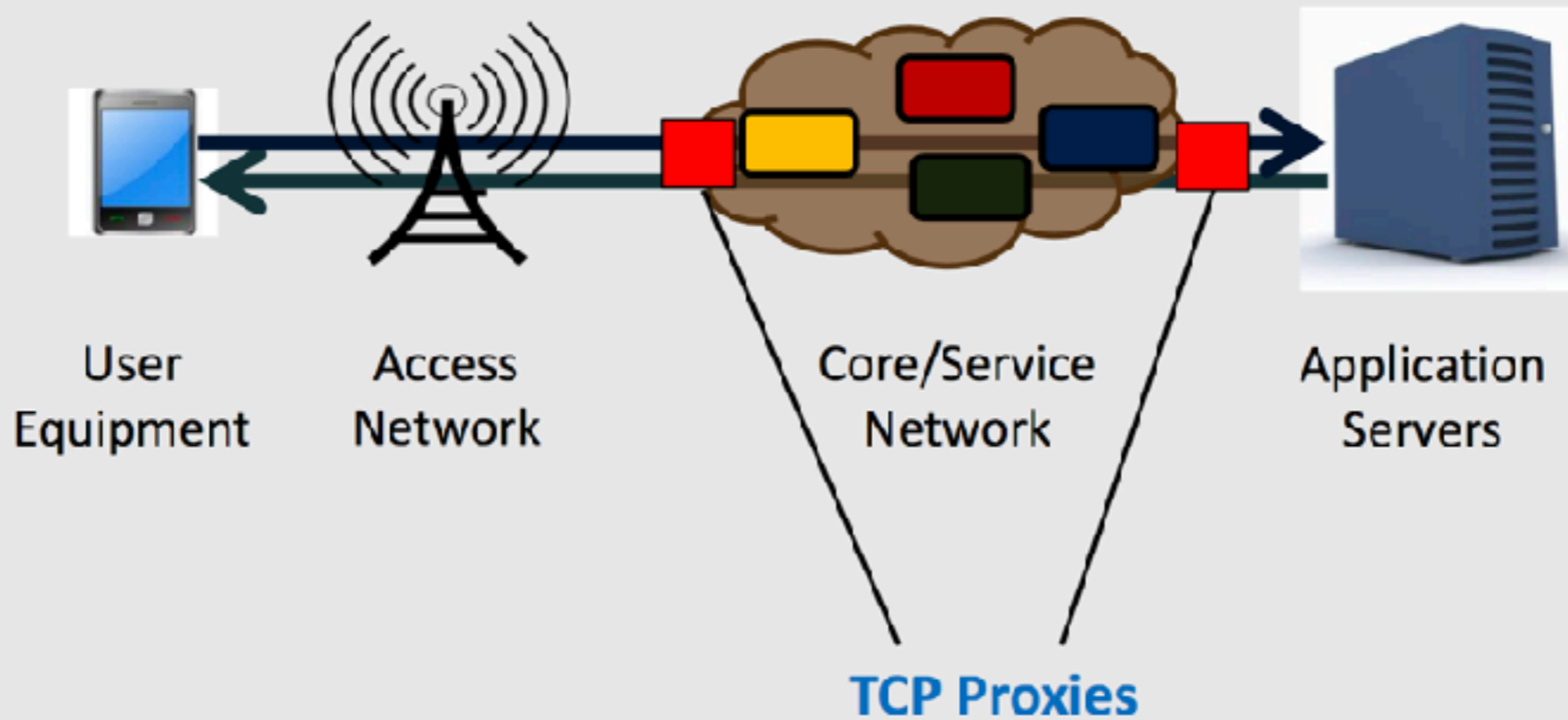
History of (Data) Communication



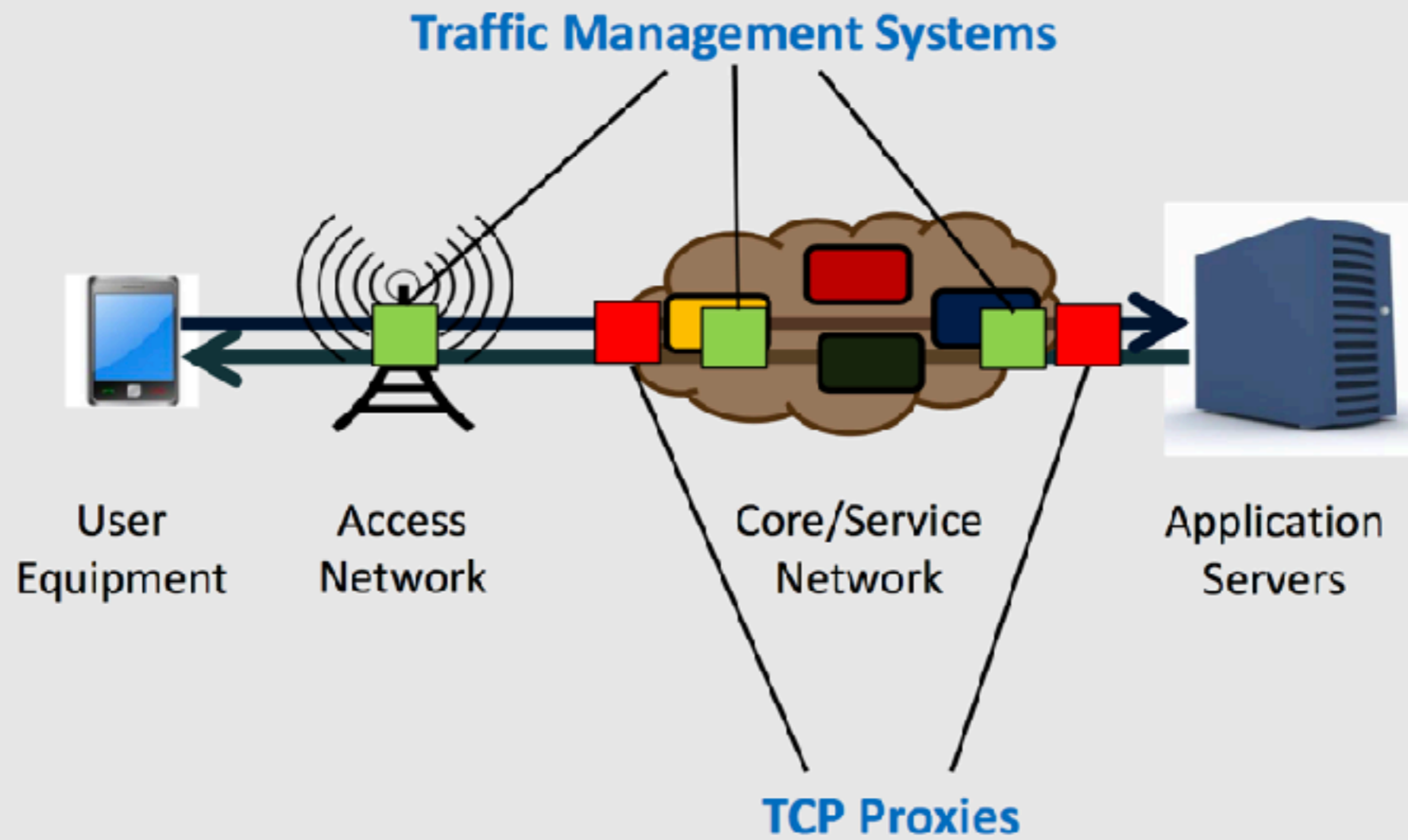
Network Performance Today



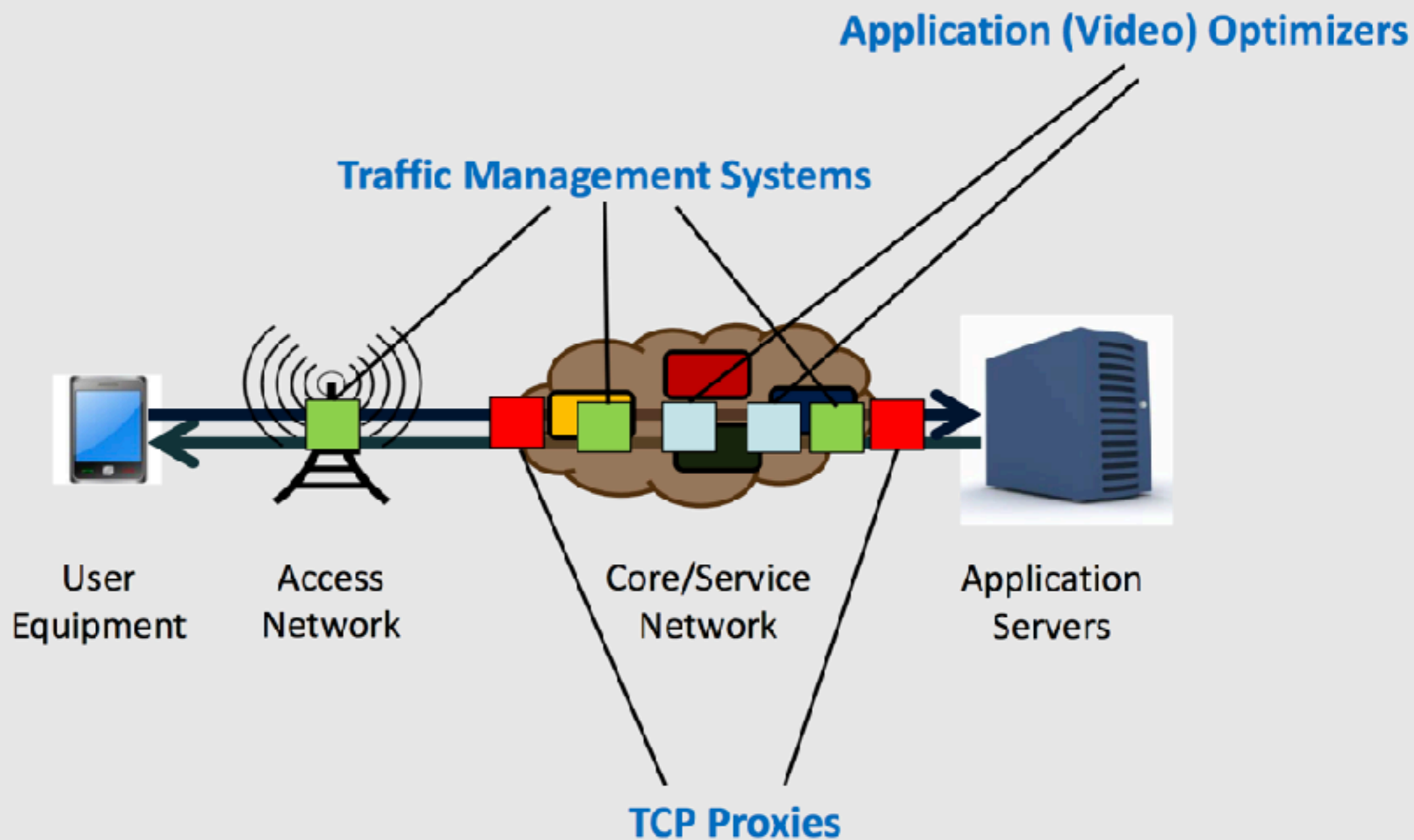
Network Performance Today



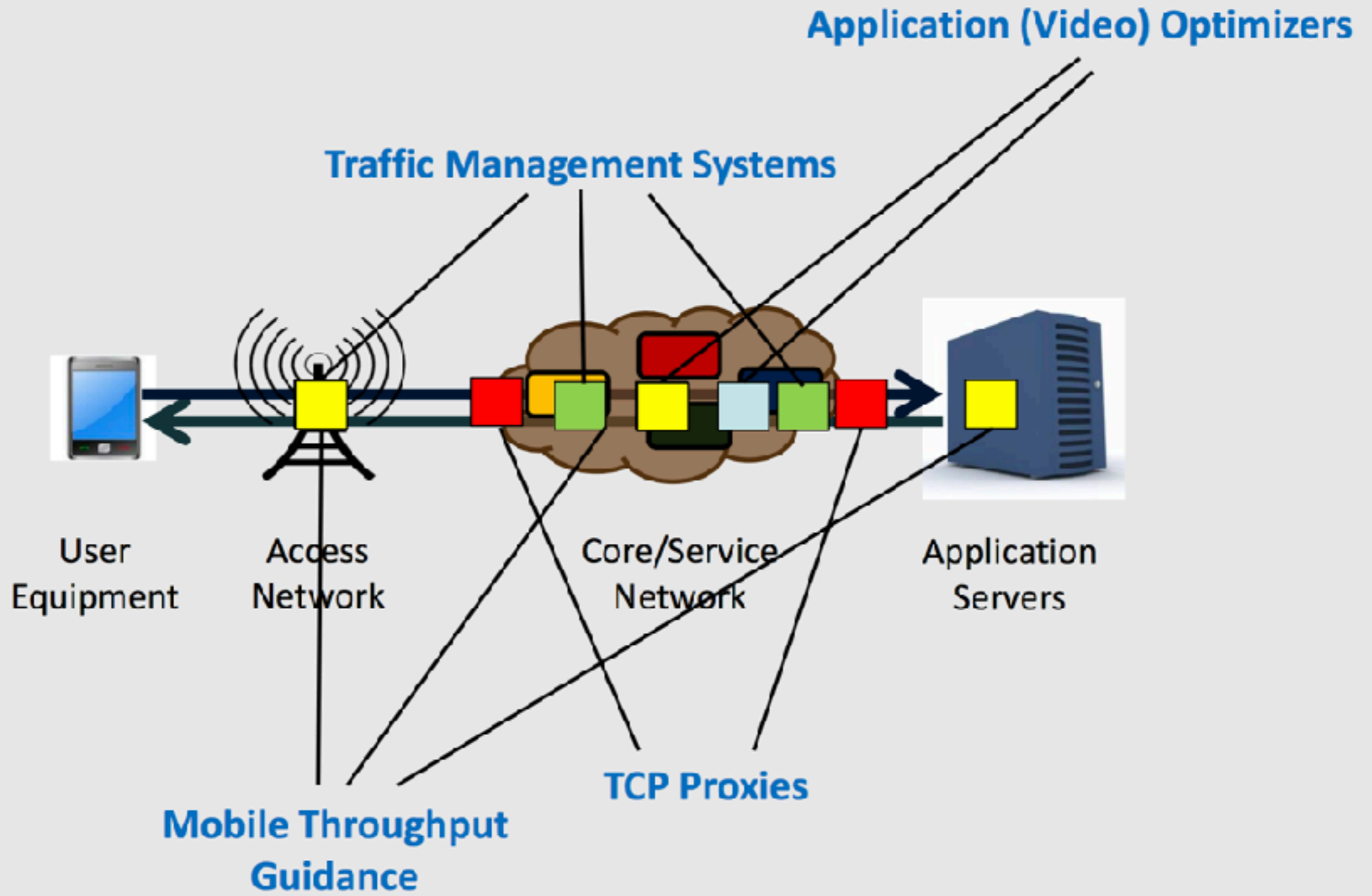
Network Performance Today



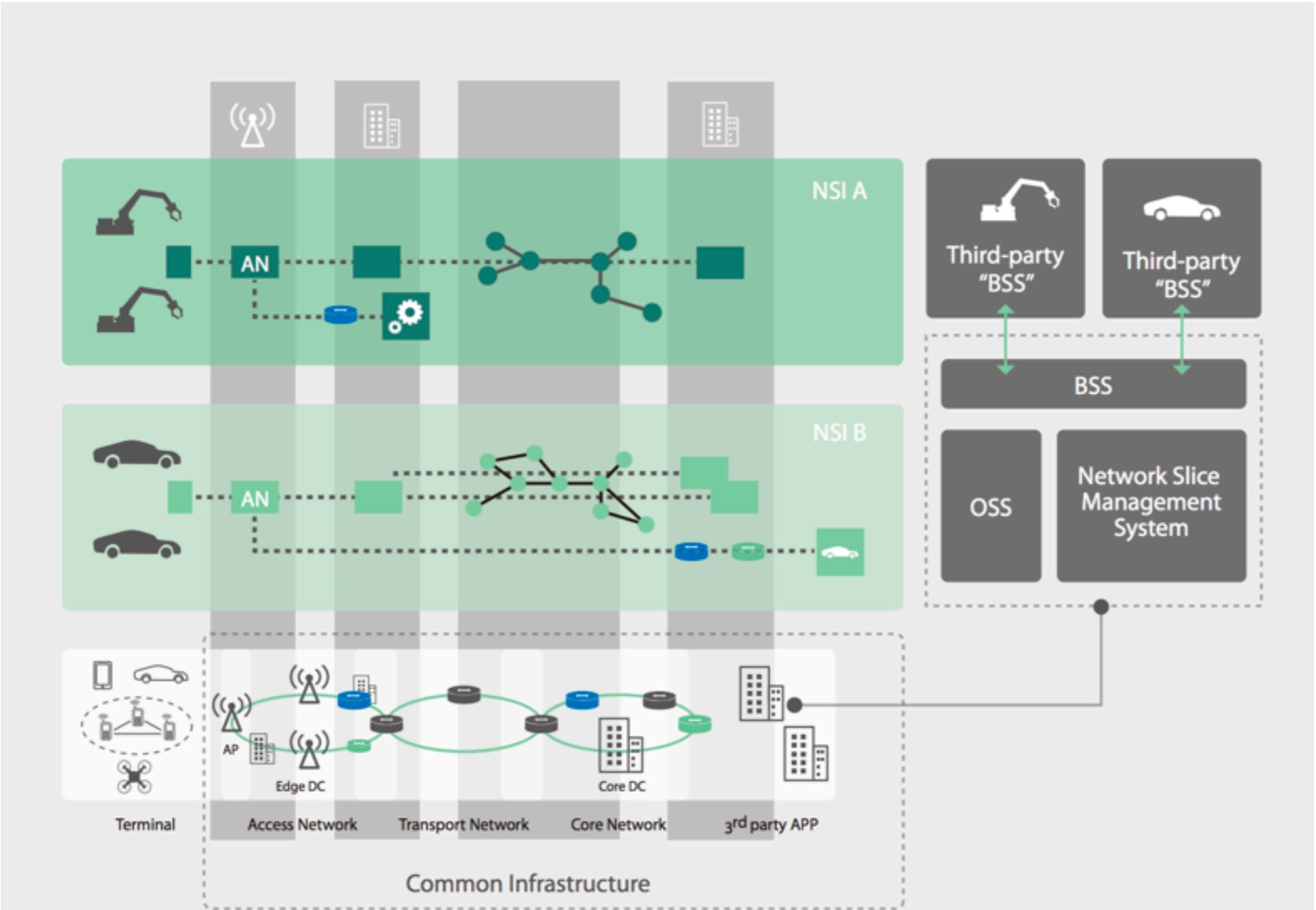
Network Performance Today



Network Performance Today



Enter Network Slicing



Current Problems

- Main problem: economic tussle between network operators and application service provider over-shadows technical discussion
- Google, Facebook etc. push TLS e2e, QUIC
 - Because your data is valuable to them
- Telco empire tries to strike back
 - NFV, PEPs, network slicing
 - Middlebox-endpoint cooperation

Features We Are Missing

- Scalable multicast distribution — ideally blending live content and canned content distribution
- Low latency
- Functionality at the edge: determinism, caching, computation
- Real security & privacy
- Censorship resistance

What We Are Not Missing

- Networks that (need to) understand applications
- Low-latency as a premium service
- Requesting permission to innovate

What to Do

Need

- **Better security&user privacy**
 - Connection-based security good – but not enough
 - Object-based security
- **More functionality in the network – especially at the edge**
 - Transport performance
 - Increasing heterogeneity

Want to Keep

- **Permissionless innovation**
- **Freedom of communication/expression**
- **End-to-end communication principle**

Challenge

- **Right transport abstraction**
- **Empowering forwarding layer – but not too much**
- **Sufficient general-purpose network capabilities**