

Mobile Communication Congestion Exposure Scenario

<http://datatracker.ietf.org/doc/draft-kutscher-conex-mobile/>

Version 03

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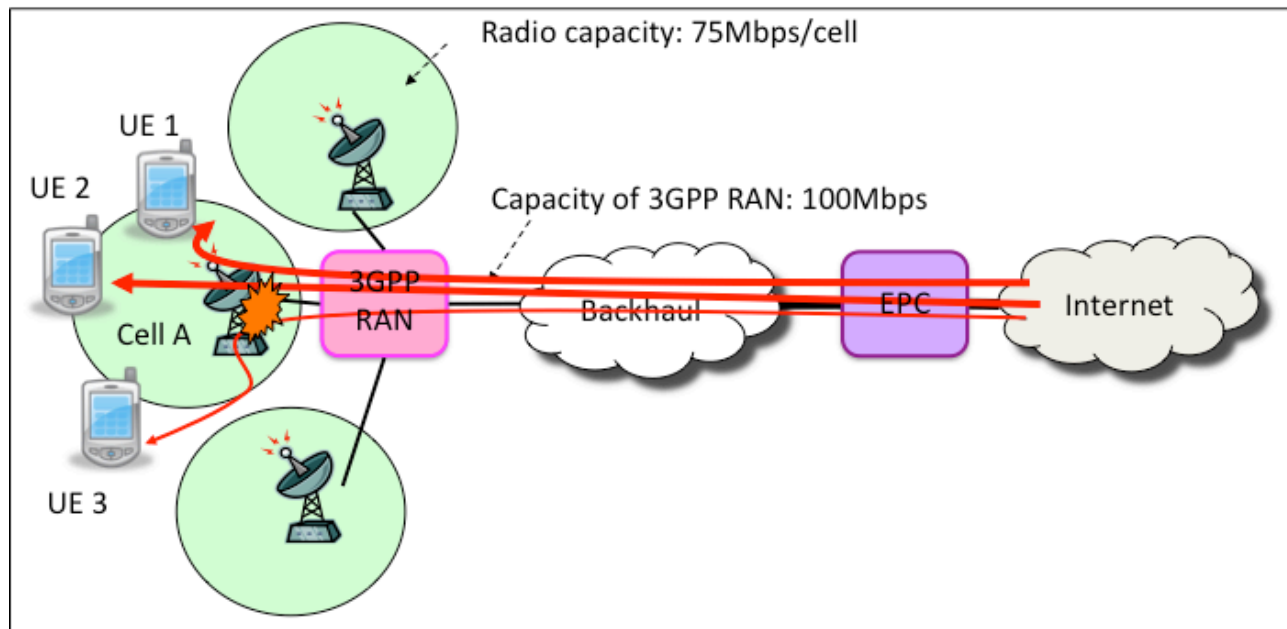
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CONEX WG: Congestion exposure in a variety of use cases

- Mainly: Informing Traffic Management
 - Enabling incentivizing usage of scavenger protocols
 - Enabling users to control relative performance of their own flows
 - Informing inter-operator contracts
 - Enabling more efficient capacity provisioning
- Turns out that most of these would be really useful in mobile communications
 - Scarce resources – elaborate policy and charging infrastructure
 - In need of scalable resource sharing for „best-effort traffic“
 - Congestion management needed at different time scales

Congestion Management in 3GPP

- 3GPP started study item on *User Plane Congestion Management* ([UPCON](#))
 - *To study scenarios and use cases where high usage levels lead to user plane traffic congestion in the RAN, and to propose requirements for handling user plane traffic when RAN congestion occurs*
 - *To make efficient use of available resources to increase the potential number of active users while maintaining the user experience*



[\[TS 22.805\]](#)

Congestion Management in 3GPP: Use Cases

- **Service subscription to allow higher QoS during RAN congestion**
 - *Enabling different resource sharing models (based on business contracts)*
- **User level traffic control**
 - *... reduce the data rate of heavy users only when RAN user plane congestion occurs*
- **Application data rate control**
 - *... limit the data rate of some applications such as P2P applications and thereby release some resources for other applications or for more users*
- **Disaster use case**
 - *... a specific communication service is allocated resources preferentially while a cell is congested due to high data traffic volume during a disaster situation*
- **Use of Application type to allow higher QoS during RAN congestion**
 - *Prioritizing interactive traffic over bulk transfer*
- **Content delivery scheduling based on RAN congestion status**
 - *Scavenger transport for bulk data*
- **Traffic compression**
 - *Selective transcoding for reacting to congestion*

CONEX WG: Congestion exposure in a variety of use cases

- CONEX approach generally apt for mobile communication networks
 - CONEX WG to focus on use case where end hosts and network containing destination host are CONEX-enabled – other networks need not be
- Mobile communication networks
 - Well-defined roles for hosts, nodes, gateways
 - Well-defined network boundaries
 - Limited resources (wireless), fine-granular policing and accounting

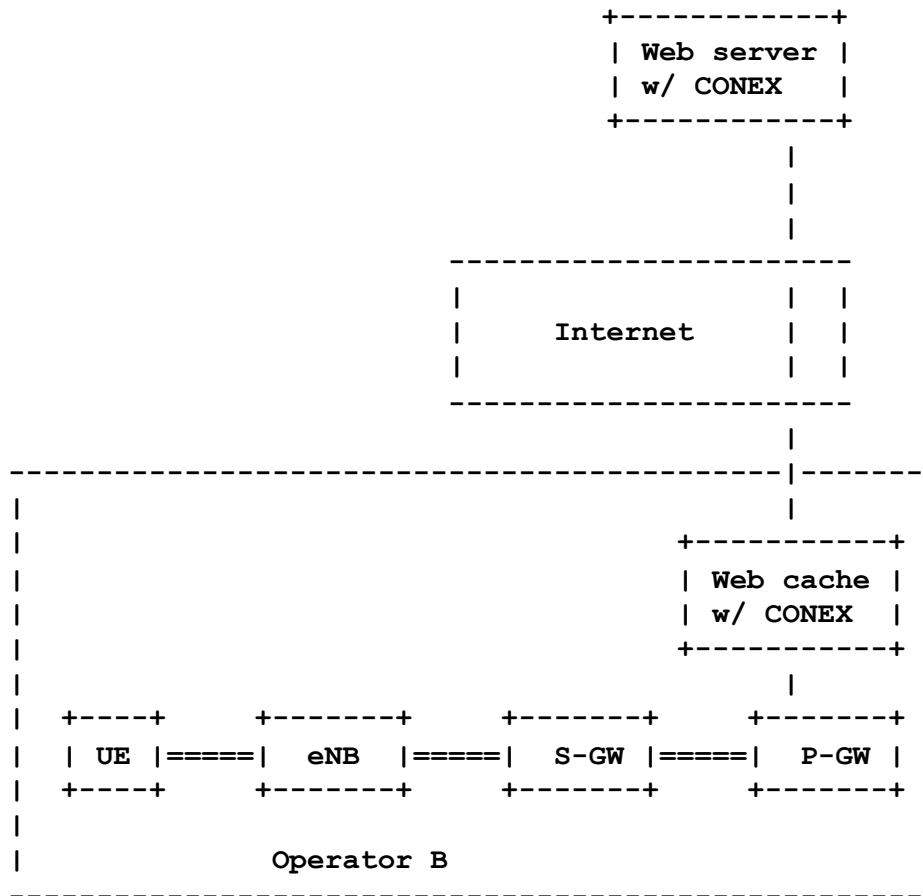
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- Describing 3GPP's EPS
- Analyzing CONEX use cases in mobile communication networks
 - Traffic management
 - Incentivize scavenger transport
 - Accounting for congestion volume
 - Differential QoS
 - Partial vs. Full Deployment
- CONEX in the EPS
 - Across operator domains
 - Within one operator network
 - Implementing CONEX mechanisms and policing functions

Summary of Recent Changes

- Emphasize description of *how* mobile communication can really benefit from CONEX
- More on how CONEX can be deployed incrementally
 - For instance: enhancing DPI and eventually making it obsolete
 - Highlighting *CONEX as a mechanism* – enabling different operator policies
- Added a deployment scenario: CONEX sender support on operators servers, caches, proxies
- Integration into 3GPP' s PCC architecture
 - Without requiring invasive changes

CONEX Support on Servers and Caches



CONEX and 3GPP PCC

- CONEX as a supplement (and not as a replacement) to existing QoS mechanisms
- For example, CONEX to provide input to existing 3GPP PCC mechanisms
 - Real-time congestion information => better resource management
 - Accumulated congestion volume for accounting
- Enable network to make better policy control decisions than possible today
 - Without requiring new reference points

Next Steps

- Would like to add more specific guidance about possible uses
 - Specific deployment scenario
 - Considering CONEX mechanisms
 - Operator feedback would be useful
- Future of this draft
 - Publish as Informational to document possible CONEX uses
 - Should this be a WG item?