Cloud Megacells & IP Radio

- Cellular network data-rates are strongly impacted by self-interference
- Coordinated reception and transmission can reduce self-interference, reach towards multiuser capacity
- Rate gains are multiplicative with spectral reuse improvements, spectrum addition
- Network MIMO air interface supported in LTE-A, but RAN design, hardware, and protocols works in progress
- Coordinated RAN design would see macro-layer antennas remoted to the “Megacell” DSP Cloud, small cells integrated as much as feasible

IP-based radio link best fit for Cloud RAN:
- Loose coupling to L1/L2 protocols
- Routable on current networks
- Latency budget met by modern switches
- Statistical multiplexing gains
- Reuses time protocols: 1588v2/3, synchronous Ethernet, PON timing
- Existing redundancy & failover mechanisms
- Could support flexible splitting of processing between devices / layers