

“All IP” Transition Issues

We believe the FCC is going to force the transition from TDM (Time Division Multiplexing) to IP-based voice, and other services. The FCC can do this relatively aggressively without imposing any ‘hard dates’; it looks like all settlements relating to TDM based facilities are going to be drastically reduced or eliminated in the relatively near future.

The big telcos are ‘experimenting’ with all-IP services, and fighting it out in the publicity market. Get ready for the legal challenges from groups that benefit from the way the network works now.

The first and perhaps biggest impact will be IP trunking instead of TDM trunks. This could cut costs and simplify some things, but obviously opens up new concerns. NECA treatment of IP trunks being a major consideration; to our understanding, right now, the ‘reimbursement rate’ on IP trunking is significantly less than TDM trunks.

If a telco has a softswitch with a good SBC (session border controller) this is theoretically an easy transition; find an IT trunk provider, or just fire up IP trunks to your tandem switch. Assuming they can handle IP trunks. If you don’t have a good SBC and a good security plan, this becomes a potentially expensive endeavor. SBC’s were originally proposed as a kind of ‘negotiator’ between protocols, but now they are used to handle lots of details, including some network security functions.

Voice becomes (almost) just another piece of data, unless you can handle serious QoS (Quality of Service). This is mostly a concern for access gear providing voice line interfaces. MetaSwitch and GenBand are set up for this, although they may also see it as an upgrade revenue-generating opportunity.

Cellular voice services are essentially all TDM. ‘4G’ LTE doesn’t really have a defined voice interface, although the “VoLTE” standard is developing (or is essentially ratified but no gear is really available yet.) And this might be a slow process since essentially all handsets will have to be upgraded. It is basically unknown whether VoLTE will reach further than standard cellular voice services; there are some clever techniques and technologies that could potentially extend VoLTE range.

Interface to wireless carriers could ultimately be easier, but would probably follow the same general process as now. Most carriers will interconnect through a tandem switch, or aggregation provider.

SS7 potentially becomes more complex, in the sense that a call could be any type of IP VoIP protocol and any transport network, and will need not just a path set up, but a path and a ‘negotiated’ connection. An SBC is supposed to be able to handle the negotiation. If there are problems they could be difficult to troubleshoot on the fly.

911 is obviously an issue. There are several groups working on standards. In theory there won't be much impact on the end office voice provider.

Emergency standalone capabilities within the Telco's access system shouldn't really be affected, unless a lot of customers move to pure IP right from their home. Many existing standalone systems probably won't work with a Pure IP line, if it is coming from some other gear.

Our Recommendations

Each voice services provider should evaluate their network, especially when they replace/update core components. They need to ensure they are enabling Pure IP services. Will there be cost recovery on these investments? At this point there is no guarantee. Don't just flat-out upgrade your access network equipment, at least until the FCC finalizes some requirements and any reimbursement details. That said, FTTP systems are essentially 'all IP' from the start, regardless of the vendor or architecture. Except perhaps for some CATV-style RFoG systems.

And, some copper-based access systems can provide TDM to the subscriber but VoIP to the network. This would save a lot of people from having to buy new phones.

Start talking with your tandem switch provider and nearby telcos; there are several types of IP services that could be provided (or at least coordinated) from a single location host.