

**“When You Come to a Fork in the Road, Take It!”**

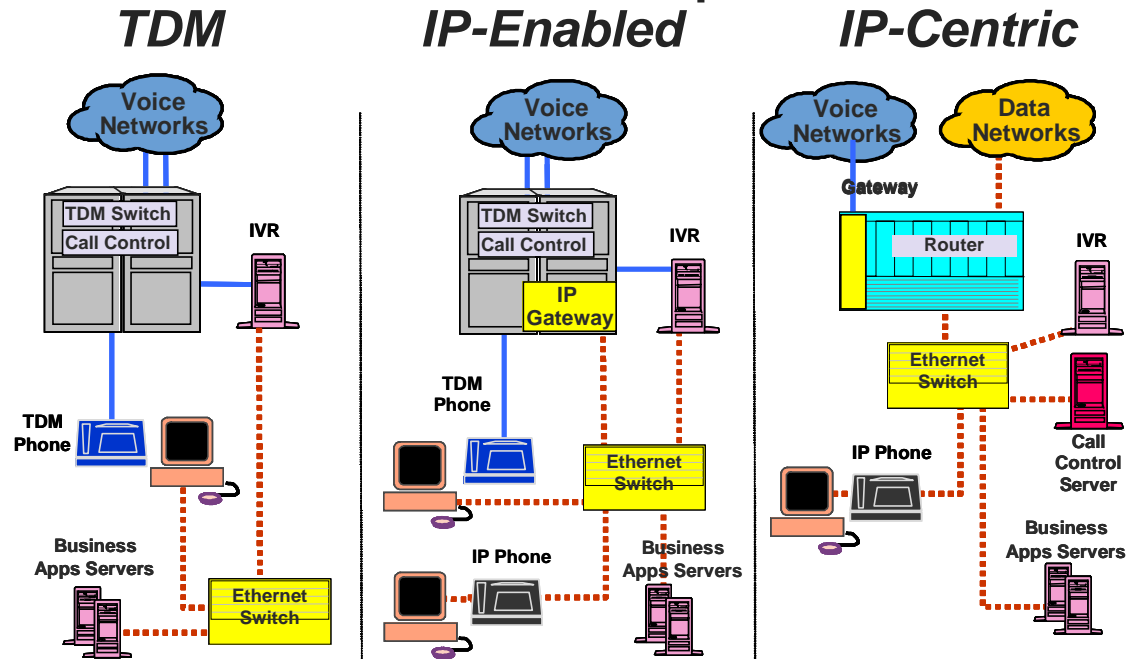
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Yogi Berra was onto something when it comes to VoIP. Each of our companies is coming to the IP fork in the road, and we will have to make *some* decision about how to proceed. While suppliers will continue to support existing time division multiplexing (TDM) based systems for awhile, R&D and enhanced functionality will increasingly be directed to IP-architected products. If application opportunities or cost-benefit calculations haven't prompted the transition, every company will be moving to (or toward) IP as aging TDM systems are replaced.

This article looks at two of the major pathways after Yogi's fork from the perspective of the contact center. These pathways are an IP-Enabled and an IP-Centric architecture, and define how intra-company communications will work. The former enables (or at least, plans) a smooth migration from a legacy TDM switching environment to an IP-based future, and contains both TDM and IP elements. The latter features IP-only capabilities once inside the corporate gateways that faces outward to the public switched network.

Most of the legacy telecommunications suppliers have deployed, or at least announced, products in both paths. The more data-oriented suppliers and many new entrants seeking to capitalize on the IP sea-change are concentrating on IP-Centric products, and not worrying about a migration path. It reminds me of the joke about how it was possible to have created the world in seven days. The answer, of course, was that there wasn't an installed base. Same concept here. Moving to an IP-Centric solution has frequently been easier in a greenfield installation, without having to incorporate legacy TDM-based equipment and adjunct systems.

# Architecture Comparison:



This diagram highlights some of the key differences between platforms based on TDM, IP-Enabled, and IP-Centric architectures. These diagrams show only a single site, but in each of these designs, the architecture can extend to encompass additional locations, remote sites, home agents, and partner companies.

In a TDM environment, on the left, all voice traffic is carried over circuit-based facilities, including phones, IVR systems, and other end points.

An IP-Enabled system begins with a TDM switch, and the connection to the PSTN is often only circuit-switched. This configuration can support either line-side TDM phones or IP phones connected through a gateway. Call processing in the switch is performed in the TDM (e.g. timeslots management, call queuing, announcements). When calls need to be connected to an IP station, an IP gateway inside the switch converts the TDM call to IP. Usually, adjunct systems, such as IVRs, remain TDM-based. Call control can remain with the PBX or is on a separate server.

In an IP-Centric architecture, all voice traffic inside the gateway is over IP. This could be a single location, or the entire corporate network, including main centers, remote sites, and conceivably outsourcer facilities. Voice trunks from the PSTN terminate at a gateway, where the voice traffic is converted to IP, ready to be routed to any end point on the LAN or WAN. Other external IP-based traffic can directly terminate at the router. The call control server is on an adjunct processor.

As the suppliers' solutions evolve, the crisp distinctions between these architectures are getting fuzzier. Reasons include wanting to be able to use their products into a variety of TDM

configurations, and seeking to minimize the number of cards, components, and systems they must maintain.

Which of these configurations is best for you? The answer, of course, is “It depends.” For existing facilities with a substantial investment in a TDM-based infrastructure that is still meeting business needs, IP-Enabled solutions allow incremental migration into IP. This approach allows piloting, uses existing adjunct processors, and gives you an opportunity to work out some of the organizational changes needed to support an IP-based infrastructure.

On the other hand, new facilities are often better served by going IP-Centric immediately. And some companies have application opportunities with compelling business cases that can only be delivered through an IP infrastructure.

In future columns, we’ll explore some of these triggers and benefits in greater detail and talk about the advantages and disadvantages of the different approaches.

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