

# Taqua 7000 Switching System

Competition for local telecommunications customers continues to expand. Aggressive marketing campaigns are luring subscribers to low-cost voice-over-IP (VoIP) services. This environment, along with the compelling benefits of next-generation switching, is motivating operators to replace or cap investments in service-limiting legacy equipment and upgrade to packet-based technology.

By moving to next-generation switching, carriers should be able to intelligently integrate voice, video and data to deliver new IP and POTS services that increase revenue per subscriber.

Operators can then bundle attractive offers, including VoIP and other broadband services, to expand their markets and increase customer loyalty.

Independent operating companies (IOCs), competitive local exchange carriers (CLECs) and independent cable companies require flexible switching solutions that provide a full range of both packet and circuit-based services in a dynamic and economical manner. The agility to enter new markets with low startup costs, interoperate with existing network resources and migrate to a converged voice, broadband data, video and wireless network will be the keys to success for these operators.

## Taqua's Class 5 Packet Switch

Taqua's 7000 Switching System (T7000) is the industry's market share leader for next-generation, end-office softswitches. Now deployed by customers throughout North America, the T7000 provides economical access to an extensive array of IP and circuit-based business and residential Class 5 features. Operators can meet regulatory requirements, satisfy the demand for new triple-play services, migrate to VoIP, lower operating costs and generate new revenues using this RUS-listed, carrier-class switch.

Based on a patented "switch-on-a-card" design, each interface card (or circuit pack) on the T7000 performs all of the functions required of a Class 5, end-office switch. Dedicated resources for call processing, service logic, switch fabric, media processing and signaling are performed on each card. By minimizing common equipment, the T7000 greatly improves service margins and gives carriers pinpoint control over network costs.

The T7000 is the ideal switch for operators that want to start small, leverage new technology with both packet and TDM interfaces and grow their lines and services as needed. A fully functional system can be deployed cost-effectively with a single card. Then, operators can easily address market growth by adding expansion cards to any of the remaining revenue-generating slots.

The simple, compact design of the T7000 is ideally suited for installation in small and mid-sized wire centers and cages, where its small footprint allows space for additional equipment and investment opportunities.

## Taqua 7000 Switching System



## Next-Generation Class 5 Switching

Taqua provides a compelling alternative to inflexible, proprietary legacy switches that offer limited feature development with no migration path and limit revenue opportunities. Operators can reduce licensing fees for switch updates and lower the overall cost of ownership. The T7000 provides a cost-effective means to introduce lucrative broadband services like VoIP four-digit dialing for business customers with multiple locations, allowing operators to expand into new markets.

Operators can "cap" a legacy end-office switch by moving traffic to Taqua's next-generation switch and stop further investment in legacy platforms. The T7000 provides complete interoperability, the competitive implementation of NP, PRI and CALEA, and a seamless migration to a converged network. Operators can add capacity, enter new markets and offer a mix of TDM and packet services to generate incremental revenue.



## Key Benefits

- ▶ **Smooth network migration strategy.** The T7000 supports both packet and TDM interfaces to provide a smooth network migration. A network operator can start with TDM interfaces and add VoIP as their packet network is deployed – or vice versa. The operator can continue to service their TDM customers and offer new VoIP services to both current and new customers.
- ▶ **Fully Integrated Solution.** All of the features needed to offer voice services are integrated on each card. Other solutions require multiple servers from multiple vendors, making them difficult to manage and support. The T7000's integrated solution is easily managed using its OpenManager element management system.
- ▶ **Analog line and IP terminations in a single cabinet.** The T7000 offers direct analog POTS line terminations in the same cabinet that also supports GR-303 subscribers, VoIP devices, IP peering and DS-3 and T-1 trunks, a unique advantage for carriers seeking to minimize their network complexity while maximizing service choices.
- ▶ **Reduced operational costs.** The compact T7000 offers extensive operational savings from reduced space, cooling and power costs. The patented "switch on a card" design of the T7000 lowers carrier inventory requirements and costs. Carriers can grow network capacity incrementally without the wholesale changes and the over-provisioning typical of traditional circuit switched networks.
- ▶ **Scalability.** The flexible system design of T7000 allows a carrier to purchase a single card in the initial system and expand capacity incrementally as the network grows. Its scalable architecture allows carriers to start small and build out cost-effectively as they construct new networks or expand into new markets. The T7000 minimizes start-up costs and allows true pay-as-you grow engineering for incremental growth.
- ▶ **Carrier-grade reliability.** The T7000 is a fully redundant switching system with hardware and software fault tolerance and high availability. The robust protection scheme of the T7000 assures continued operation during facility or equipment failures.

## Features

- ▶ Key features of the T7000 hardware include:
  - Broadband passive midplane architecture
  - Scalable distributed processing model
  - Expandable switching capacity
  - Resource-efficient high-density design
  - Non-blocking switch fabric
  - Any-to-any interface interworking flexibility
  - Fault tolerance and high availability
  - Compliance with industry standards and regulations
  - RUS listed
- ▶ The midplane design accommodates the following cards in the front slots to support a wide range of access and trunking protocols, including MGCP, NCS, SIP, SS7, MF, ISDN-PRI and GR303.
  - Packet Interface Card (PIC)
  - T1 Interface Card (TIC)
  - Broadband Interface Card (BIC)
  - Line Trunk Card (LTC)

- ▶ The T7000 supports an extensive set of IP and TDM CLASS and custom-calling subscriber services, as well as cost-reducing network functionalities, including:
  - A-link consolidation / Point Code pass through
  - Business trunking
  - Cable telephony
  - Enhanced analog or IP Centrex
  - Robust GR303 interface to DLCs or voice gateways for triple-play service
  - Hosted PBX services
  - IP toll interconnection
  - Local 8xx re-direct
  - PRI
  - Regulated telephony services (CALEA, E911, operator services, directory services, busy line verification, etc.)
  - UNE-P replacement
- ▶ The T7000 economically scales from 0 to 42k subscribers in a single frame.
- ▶ Fault-tolerant hardware provides line card redundancy with substitution - a robust and flexible equipment protection scheme that allows multiple, variable-size protection groups to be created as suited for each application, from 1:1 to 19:1 in each shelf. Multiple connections from each line card to signaling and switching busses in the mid-plane assure continued operation through partial hardware or subsystem failures.
- ▶ The T7000 fault-tolerant software employs a variety of self-checking software algorithms to identify and contain errors. The control processors on each card work together to dynamically share responsibility for system-wide tasks, providing resilience from single or multiple processor failures.
- ▶ The software architecture of the T7000 allows introduction of software upgrades and updates in real-time. New features and services can be uploaded and activated while the switch is in service. Software updates allow running software be fixed or modified without downtime.

## Installation / Technical Support

Taqua's expert support specialists are available 24 hours a day, seven days a week, throughout the implementation process. Taqua offers a full range of services, including network analysis and design, implementation assistance, database design and load, installation and commissioning, turn-up testing and network verification. On-site assistance is provided for all acceptance and interoperability testing to guarantee successful network connectivity.

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