



*Multi-Service Broadband  
Solutions for*

## **Multi-Tenant Commercial Markets**



**TUT SYSTEMS**



Tut Systems (NASDAQ: TUTS) is a leading provider of multi-service broadband access systems for multi-tenant buildings including apartments, dormitories, hotels and commercial properties. Tut's family of multi-service platform products integrated with Tut's award-winning HomeRun™ technology allows service providers and property owners to use buildings' existing infrastructure to cost-effectively deliver multi-service integrated communication solutions. In partnership with service providers, Tut has deployed its solutions in some of the country's largest real estate investment trusts, commercial properties and the flagship properties of several major hotel chains. Tut also produces a line of scaleable, carrier-class digital subscriber line access multiplexers (DSLAMs) for the local loop and a line of robust, high-speed Ethernet extension products for campus environments. Tut's HomeRun technology has been chosen by the Home Phonenumber Networking Alliance (HomePNA) as the initial specification for in-home networking over phonelines.



## **The Multi-Tenant Commercial Communications Market**

Business demand for high speed Internet access and advanced communications services has dramatically increased over the last couple of years. Owners and managers of commercial office buildings view these services as a requirement for their tenants. No longer is the availability of high-speed Internet access and advanced communication services an amenity. Specifically, commercial property owners see broadband services as an effective business tool to:

- Attract and retain the best portfolio of business tenants
- Add new high value amenities to its service portfolio and develop effective branding
- Increase revenues and profitability

Service providers are emerging to fulfill this market demand – providing Internet and advanced communication services throughout commercial office buildings in partnership with the property owners and managers. And, while high-speed Internet access is the primary service today, it is clear that the delivery of multiple services such as high speed data, traditional and packet voice and IP video is key to meeting future customer needs and driving service provider profitability.

Tut Systems' product offerings include an entire portfolio of products which enable service providers to deploy integrated communication services to virtually every type of commercial multi-tenant unit (MTU) building including commercial office high-rises, business parks and campuses, and retail centers. Tut Systems' on-premises systems for high-speed Internet and advanced communication services provide a cost-effective, high-quality and advanced service solution for service providers in this large growing market.

According to the Building Office Management Association (BOMA), in the United States there are 750,000 multi-tenant commercial buildings over 10,000 square feet. This market, which includes campus environments such as business parks, retail malls and industrial buildings, represents an over \$100 billion revenue opportunity for communication services into the Commercial Multi-Tenant Market.



## The Tut Solution

Tut Systems provides a complete systems for delivering advanced communications services that are scalable and easy to install. Tut products tap the enormous potential of underutilized copper wiring and deliver high-speed data networking over unconditioned, telephone-grade wiring using industry-standard and Tut's FastCopper™ technology.

The Tut Systems' Commercial solution consists of 4 key components:

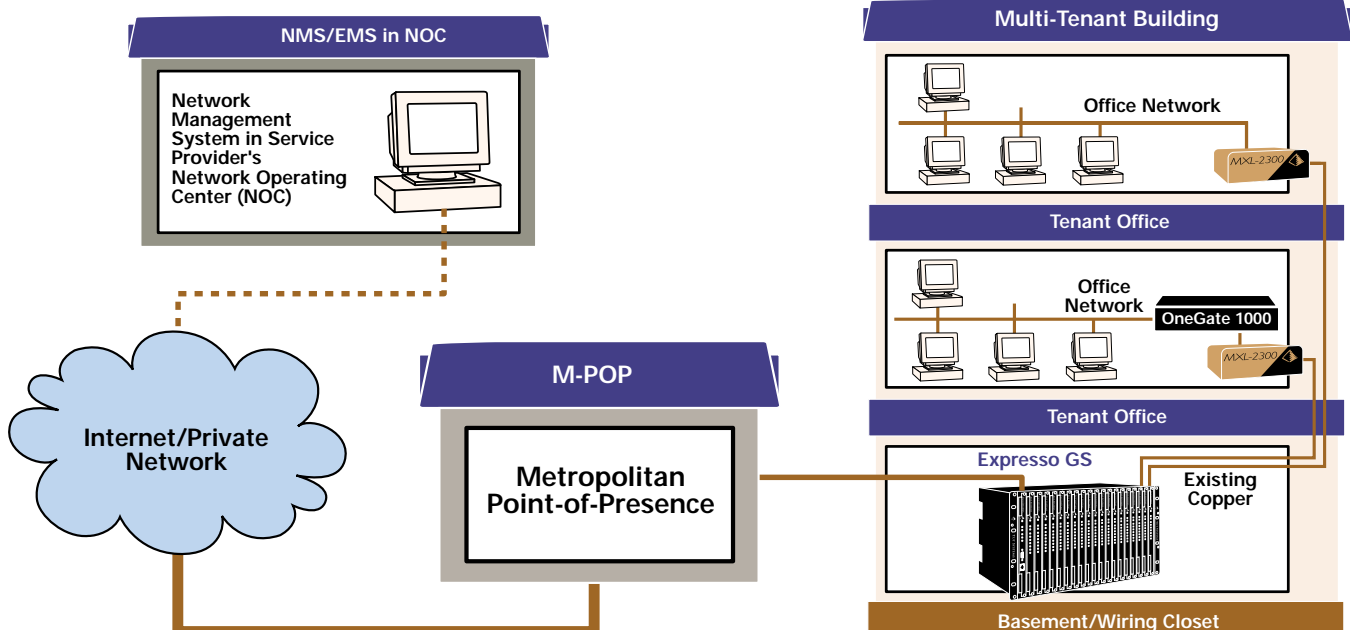
- **The Espresso GS Access Concentrator** that includes a management card, an Ethernet switch card and a high-speed WAN router card.
- **Subscriber Interface Cards** supporting up to 102 2.3Mb SDSL connections per chassis.
- **Customer Premise Equipment (CPE)** options including the MXL-2300 SDSL small and medium office bridge/router and the OneGate, Internet service appliance.
- **Network Management System** providing detailed centralized SNMP management and monitoring

### Services

- High-speed Internet access up to 2.3 Mb
  - IP Routing
  - Business Television
  - Tiered data services
  - Intra-building VLAN
- Branch-to-branch VPN
- Remote access VPN
  - Security Firewall
- E-mail and Web servers
  - Web caching
  - Web blocking

### Benefits

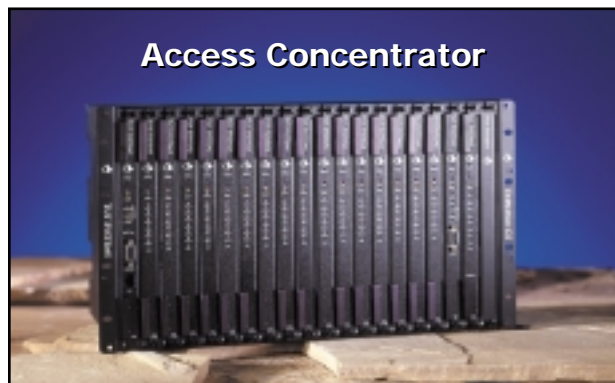
- High-speed subscriber connectivity
- Up to 6 Mb standard WAN interface
  - Scalable, multi-service platform
  - Multiple CPE options
- Centralized network management
  - Quickly deployable
  - Avoid co-location expense
  - Reduce local loop charges
  - Low start-up costs





## The Tut Solutions

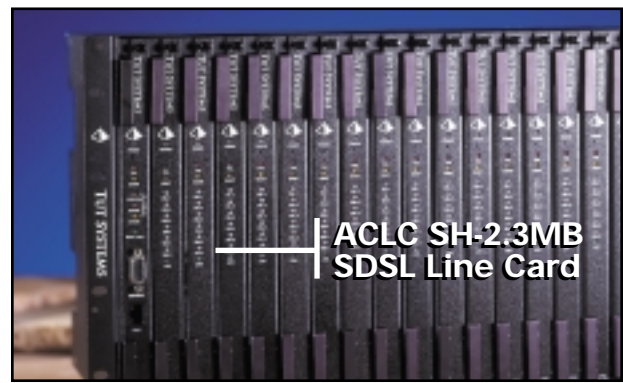
Tut's solutions focus on lowering the cost of ownership for both solution providers and business owners by using the property's existing infrastructure and through remote management and self-provisioning, eliminating the need for on-site MIS managers and costly truck rolls.



**Access Concentrator**

### Expresso GS Access Concentrator

Tut's broadband platform for delivery of high-speed DSL-based services. The Access Concentrator accommodates up to seventeen line cards and as many as 102 subscribers per six RU (10.5") shelves.



**ACLC SH-2.3MB SDSL Line Card**

### ACLC SH-2.3MB SDSL Line Card

The ACLC provides dedicated high speed data services for up to six subscribers. With the ability to allocate bandwidth in multiples of 64 Kbps per port, service providers can offer a variety of differentiated, tiered services.



**MXL-2300**

### MXL-2300 Bridge/Router

One of the CPE components of Tut Systems' Commercial offering, the MXL-2300 is a small and medium office bridge/router that connects a local Ethernet network or a single PC to a high-speed SDSL line. With this product, service providers can offer basic tiered Internet access and/or create a virtual local area network (VLAN) between different offices of the same company on the same property.



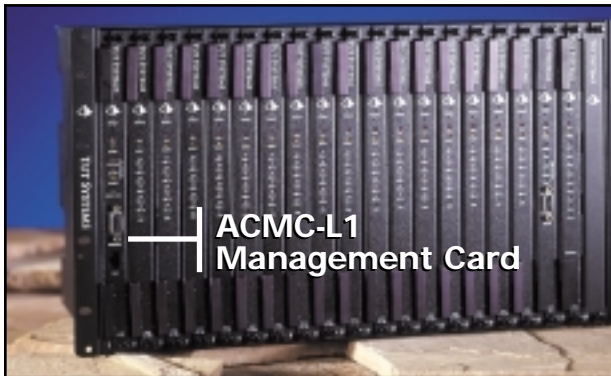
**OneGate 1000**

### OneGate 1000 Internet Service Appliance

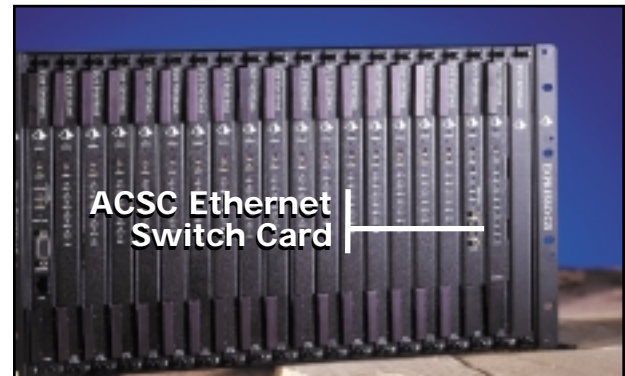
OneGate 1000 is an Internet service appliance combining, on a single industrial-strength platform, all the hardware and software necessary to offer advanced data services such as Internet access, e-mail, on-premises firewall security, branch-to-branch VPN, remote access VPN, Web publishing and Web caching services.



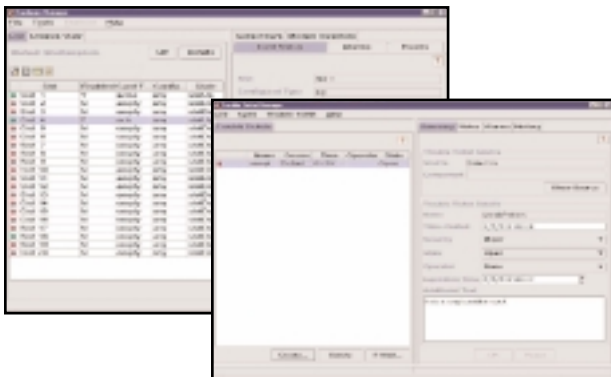
## The Tut Solutions (continued)



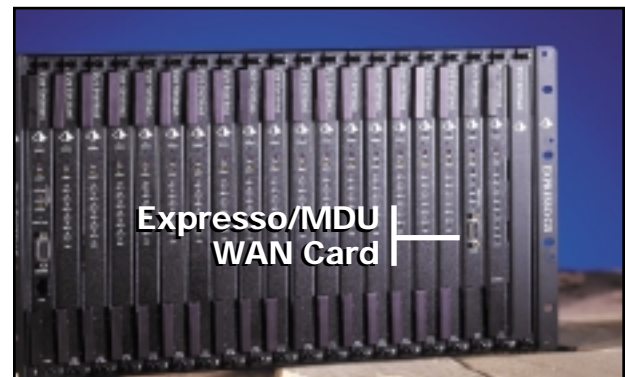
**ACMC-L1 Access Concentrator Management Card**  
Provides end-to-end operations, administration, maintenance and provisioning for the Espresso GS Access Concentrator.



**ACSC Ethernet Switch Card**  
The ACSC switch card concentrates and switches Ethernet traffic from up to 17 line cards and presents the data to an external 10Base-T and 100Base-T ports.



**Network and Element Management System**  
Provides detailed centralized management and monitoring capabilities for multi-system networks using HP Openview, including an element, sub-network and trouble ticket management system.



**Expresso /MDU WAN Card**  
This optional card works in conjunction with the Ethernet switch card and SDSL line cards to provide broadband WAN access to Espresso GS access concentrator. The Espresso ACWC provides layer 2 and layer 3 switching and routing functions eliminating the need for external routers and bridges.



*Multi-Service Broadband Solutions for*

**Multi-Tenant Commercial Markets**



**TUT SYSTEMS**

[www.tutsys.com](http://www.tutsys.com)



*Multi-Service Broadband Solutions for*

**Multi-Tenant Commercial Markets**



**TUT SYSTEMS**

[www.tutsys.com](http://www.tutsys.com)