

3600 MAINSTREET

MULTISERVICE BANDWIDTH MANAGER

Alcatel's 3600 MainStreet Multiservice Bandwidth Manager is a flexible, scalable and intelligent networking node that combines the functions of an integrated voice and data multiplexer, a frame relay and X.25 switch, a low capacity ATM access node, an intelligent channel bank, and a digital cross-connect switch. The 3600 MainStreet accommodates network evolution and protects investment by providing customers a means of integrating narrowband legacy services and broadband or IP-based networks.

The 3600 MainStreet is ideal for access networks that support multiple TDM and packet/cell services including:

- ▼ Packet/Cell: ATM, frame relay, voice over frame relay (VoFR), X.25, and IP (via NTU)
- ▼ TDM: leased line, legacy voice and data, and voice compression



Reliable,
fully managed
multiservice
platform



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Offering a wide range of advanced business services, the 3600 MainStreet is the most successful digital overlay platform ever built, with over 160,000 nodes installed worldwide, and growing.

It can be used:

- ▼ to concentrate circuit switched, packet and cell-based voice and data traffic
- ▼ to offer leased line services from subrate to 2 Mb/s ($n \times 64$ kb/s)
- ▼ as an international gateway providing E1/T1, E3/T3 and ISDN interfaces with signalling and super-rate conversion, line and circuit grooming and voice compression
- ▼ as a low to medium capacity 3/O and 1/O DACS
- ▼ as an intelligent channel bank

Modular architecture

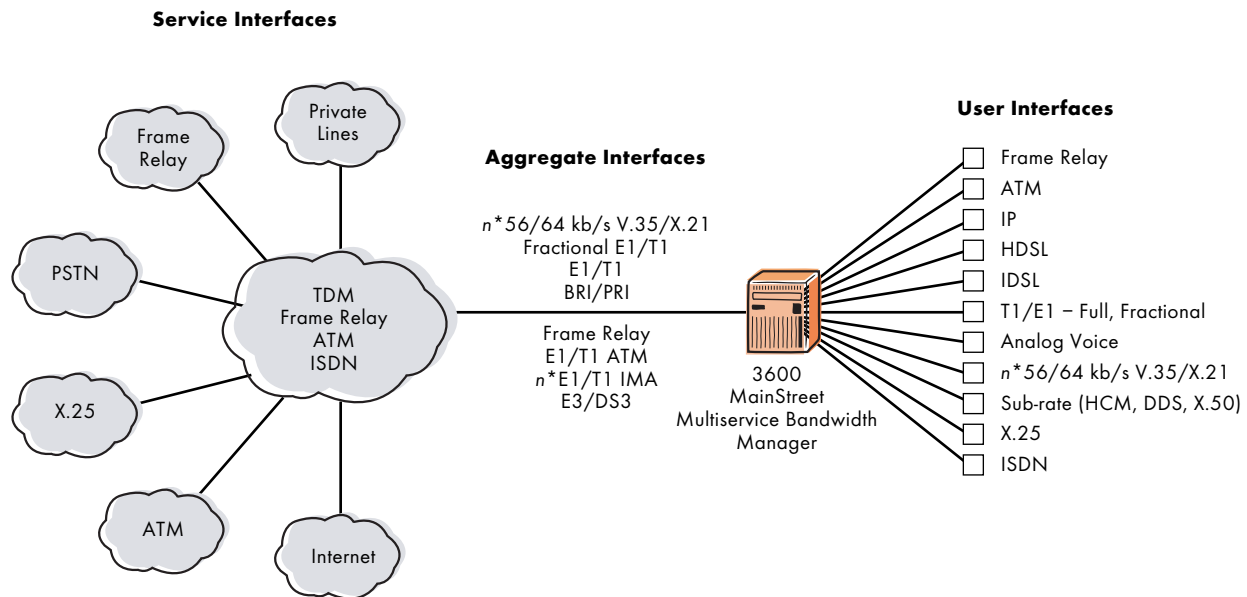
The 3600 MainStreet switching matrix is fully interconnected and non blocking, and can be used as a standalone unit or scaled to sixteen peripheral shelves. The flexible shelf configurations provide a wide range of interfaces from ATM and packet to legacy voice and data services.

The modular architecture of the 3600 MainStreet platform allows you to expand from a cost-effective single shelf system to a large multishelf system on an as-needed basis (see Figure 2). The 3600 MainStreet is scalable to 256 E1/T1 switch capacity or 16/8 E3/T3, respectively.

The reliability of the 3600 MainStreet is guaranteed by many features including redundancy of the power supplies, synchronization (on multishelf), control and interfaces. The 3600 MainStreet has a field-proven availability in excess of 99.999 percent. The switch supports a full spectrum of fault management features including connectivity verification, alarm surveillance, performance monitoring and test connections. Complete network performance monitoring and fault management are supported by the Alcatel 5620 Network Manager (NM), formerly the 46020 Network Manager*.

In addition, the 3600 MainStreet supports standard synchronization sources such as BITS, G.703 2,048 kb/s synchronization interfaces, line time synchronization from interface cards, as well as line trunking.

▼ Figure 1: Overview



* These products belonged to the Newbridge family. Newbridge was acquired by Alcatel in May 2000.

Technical Summary

General

- ▼ Fully software configurable
- ▼ Software downloadable
- ▼ Local or remote management
- ▼ End-to-end path management and configuration via the 5620 NM
- ▼ Choice of switching technology, circuit or packet
- ▼ Fully redundant, non blocking switching matrix
- ▼ Control redundancy
- ▼ Power redundancy
- ▼ Wide variety of aggregate and drop side interfaces
- ▼ Choice of timing/synchronization sources
- ▼ Full range of automatic and user directed diagnostics
- ▼ Modular architecture
- ▼ Scalable architecture
- ▼ All cards are hot swappable

ATM

- ▼ AAL1/5
- ▼ IMA, UNI 3.1

Frame Relay

- ▼ Scalable carrier class FR switching up to 120,000 FPS over 256 Mb/s access bandwidth
- ▼ Adherence to frame relay standards (FRF, ITU and ANSI)
- ▼ Support for advanced FR services, including quality of service (QoS), fragmentation/reassembly, DLCI multiplexing and VoFR
- ▼ Congestion management and performance monitoring
- ▼ Support for network and service interworking (FR/ATM, X.25/FR)
- ▼ B-ICI, FRF.5, FRF.8

X.25

- ▼ Scalable high performance X.25 switching up to 100,000 DPPS and 12,800 CPS
- ▼ X.25 service compliant with 1984, X.75 1988, 1992 and 1996 ITU X.75 recommendations
- ▼ DTE access rates from 1.2 kb/s to 2 Mb/s
- ▼ Full support of X.25 PVC, SVC
- ▼ Full support of X.25 accounting and NUI validation

Leased Line

- ▼ E1/T1
- ▼ E3/T3
- ▼ V.35, X.21 PRI
- ▼ DTU (Data Termination Units) for remote access with V.35, V.24 (EIA-232) and X.21 user interface.

- ▼ Please consult the 275X MainStreet Data Termination Unit data sheet for rates to 128 kb/s.
- ▼ Please consult the 2801 MainStreet HDSL Data Termination Unit data sheet for rates to 2 Mb/s.

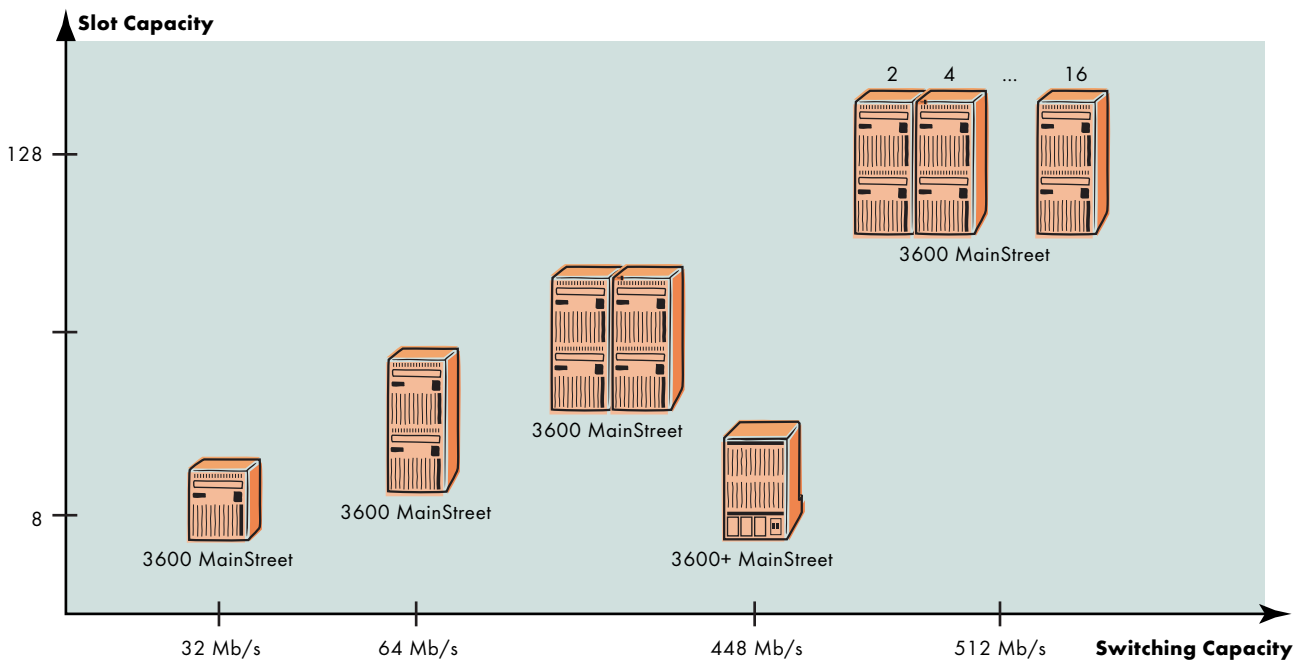
Single Shelf Configuration

- ▼ Control and power redundancy available
- ▼ 8 UCS slots, or 16 E1/T1 capacity

Dual Shelf Configuration

- ▼ Two single shelf with cabling to interconnect.
- ▼ Control and power redundancy
- ▼ 16 UCS slots for 32 E1/T1 capacity

▼ Figure 2: 3600 MainStreet family scalability



Multishelf Configuration

- ▼ Switching shelf provides switching matrix for multishelf configuration
- ▼ Switching shelf is added to interconnect the different peripheral shelves
- ▼ From 1 to 16 peripheral shelves connect to the switching shelf
- ▼ Both switching and peripheral shelves have control and power redundancy option
- ▼ Switching shelf can have synchronization redundancy
- ▼ 128 UCS slots or 256 E1/T1 capacity
- ▼ Up to 16 E3 or 8 T3 capacity can be added to the multishelf configuration via the high speed peripheral shelf (HSPS)

Synchronization Sources

- ▼ BITS 1.544 Mb/s or G.703 2.048 Mb/s external
- ▼ Line derived
- ▼ Internal (FreeRun)

Node, Network and Service Management

- ▼ Full end-to-end path management and provisioning
- ▼ Local or remote management interface through NMTI, Craft Interface or the 5620 NM
- ▼ Centralized alarm management with audible and visual alarm notification
- ▼ Centralized software administration
- ▼ Automatic discovery of equipment additions, deletions and changes
- ▼ Extensive performance data for SLAs and billing
- ▼ Multiple graphical displays of performance data

Physical Description

Switching Shelf

- ▼ Height: 48 cm (19 in.)
- ▼ Width: 48 cm (19 in.)
- ▼ Depth: 30 cm (12 in.)
- ▼ 11 VU, approximately 10 kg (22 lbs.)

Single, Dual, Peripheral Shelf 19"

- ▼ Height: 48 cm (19 in.)
- ▼ Width: 48 cm (19 in.)
- ▼ Depth: 30 cm (12 in.)
- ▼ 11 (VU) approximately 10 kg (22 lbs.)

Single, Dual, Peripheral Shelf 23"

- ▼ Height: 45 cm (17.5 in.)
- ▼ Width: 58 cm (23 in.)
- ▼ Depth: 30 cm (12 in.)
- ▼ 10 (VU) approximately 10 kg (22 lbs.)

High Speed Peripheral Shelf

- ▼ Height: 48 cm (19 in.)
- ▼ Width: 48 cm (19 in.)
- ▼ Depth: 30 cm (12 in.)
- ▼ 11 (VU) approximately 10 kg (22 lbs.)

Operating Environment

- ▼ 0° to 40° C (32° to 104° F)
- ▼ 5% to 95% relative humidity, noncondensing
- ▼ 60 m (197 ft.) below sea level to 1,800 m (5,905 ft.) above sea level

Product Safety

- ▼ EMC to FCC Part 15; Industry Canada CES-003; EN55022; EN50082-1
- ▼ Safety to CSA C22.2 No. 950; UL 1950; EN60950, IEC 60950
- ▼ Environmental to GR-63-CORE (NEBS)

Network Attachment

- ▼ Network attachment to FCC Part 68, CTR 12, CTR 4; Industry Canada CS-03

EMC

- ▼ FCC Part 15 Class A
- ▼ ICES-003 Class A
- ▼ EN55022 Class A
- ▼ EN55022 Class B (3600 Class B shelf and 3600+ with universal faceplates)
- ▼ EN50082-1[N7]

Power

- ▼ Maximum 12.5 W per slot
- ▼ 48/60 V DC
- ▼ 110/220 V AC

Contact Alcatel for information on upcoming feature enhancements.

Feature Summary

Voice Interfaces	3600 MainStreet	3600+ MainStreet
E&M (Type I,II,III,V)	•	•
LS/GS Subscriber (LGS)	•	•
LS/GS Exchange (LGE)	•	•
T1 D4 and ESF formats	•	•
E1 CAS and CCS, R2D (E&M)	•	•
E&M, LGS, LGE, and MRD Channel Units	•	•
Data Interfaces		
V.24 / V.28 / RS232-C	•	•
RS422 (4 full duplex interfaces independently configurable as RS 530A, V.36 / RS449, X.21 or V.35)	•	•
V.35	•	•
X.21 / V.11	•	•
OCU-DP AND 4WT0 Channel Units	•	•
64 kb/s codirectional (G.703 with AIS detection)	•	•
2B1Q Line Card (interfaced with 275x DTUs)	•	•
Aggregate Interfaces		
44.736 Mb/s T3	•	•
34 Mb/s E3	•	(future)
1.544 Mb/s T1 (D4, ESF, 64 kb/s chan.) (ATM AAL 1/5)	•	•
2.048 Mb/s E1 (CAS, CCS, 64 kb/s chan.) (ATM AAL 1/5)	•	•
56 kb/s or n*64 kb/s V.35 PRI	•	•
56 kb/s or n*64 kb/s X.21 PRI	•	•
ISDN PRI E1/T1	•	•
E1 HDSL	•	•
Fractional E1/T1	•	•
ISDN S/T BRI	•	•
ISDN U BRI	•	•
Optical Extension E1	•	•
OC-3		•
STM-1		•

For more information www.cid.alcatel.com

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Resource Cards	3600 MainStreet	3600+ MainStreet
General Facilities Card	•	•
Test Card (metallic test access for carrier card)	•	•
DSP Applications		
Voice Compression	•	•
▼ 8 and 16 kb/s HCV compression	•	•
▼ 8 kb/s A-CELP (ITU G.729)	•	•
▼ 16 kb/s LD-CELP (ITU G.728)	•	•
▼ ADPCM (ITU G.721) 32 kb/s	•	•
G3 fax support (V.17) over compressed voice (14.4 kb/s max.)	•	•
Modem (V.32bis) tones support over compressed (CELP) voice (14.4 kb/s)	•	•
Subrate multiplexing and switching of compressed voice and data	•	•
Echo cancellation (26ms, G.165)	•	•
Voice conference bridging	•	•
Mu / A-law companding conversion	•	•
Multidrop PCM data bridging	•	•
I.460 (n*8 kb/s transparent) Multiplexing	•	•
High Capacity Multiplexing (HCM)	•	•
DDS and X.50 rate adaptation	•	•
Frame Relay / X.25		
Frame Relay Switch (FRS/SRM) Card	•	•
Frame Relay Engine (FRE) Card	•	•
FRATM Interworking Unit (Frame Relay to E3/T3 ATM)	•	•
Packet Engine (PE) Card	•	•
FASTbus option	•	•
General (maximum)		
# of universal card slots	128	16
# of E1/T1 ports	256	128
# of E3 ports	32	(future)
# of T3 ports	16	3
Shelf Sizes	19 – 23 in. HSPS1 HSPS2	19 in.



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