



*Take your network Farther with Transition Networks*

## **METRO-ETHERNET SOLUTION ETTx Service Aggregator Switch**



**24 100BASE-X SFP Ports, 2 10/100/1000 RJ-45 Ports, 2  
Gigabit Combo Ports Managed Switch**



# Product Overview SM24-100SFP-AH



## Next Generation Switch

The SM24-100SFP-AH features a 1U form factor consisting of (24) 100Base-X SFP ports, (2) 10/100/1000 RJ-45 ports and (2) Gigabit combo ports. The 24 SFP ports accept industry standard 100BASE-X optical transceivers.

The SM24-100SFP-AH switch also includes Carrier Ethernet specific software, QoS and Management features which enable service providers to deliver secure services while checking end to end connectivity for customers. The SM24-100SFP-AH switch is a next generation switch designed to fulfill the needs of service providers.

# Product Overview- Features Overview

## Single IP Management for 36 Switches

The SM24-100SFP-AH is managed as a single switch and has a single IP address. Up to 36 of the SM24-100SFP-AH switches can be virtually stacked and managed as a single switch while using only one IP address.

## 802.3ah OAM

In addition to a large user base, a service provider network can become very large and complex. The 802.3ah OAM capabilities of the SM24-100SFP-AH help service providers isolate, maintain and manage network traffic.

## Carrier Ethernet Specific Software

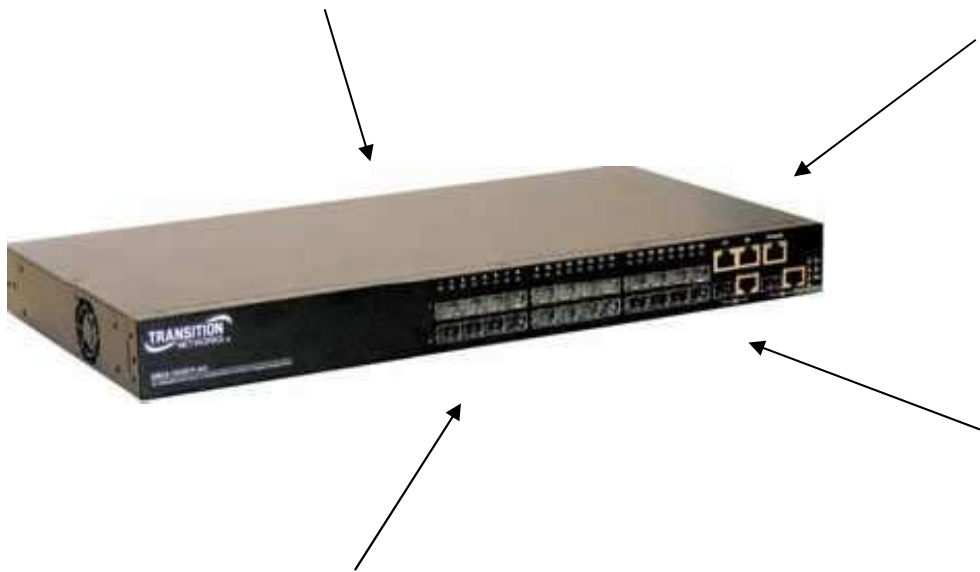
The SM24-100SFP-AH switch was designed for use with Carrier Ethernet. Feature enhancements such as 802.3ah, Q-in-Q, Carrier Class Rate-Limit, QoS and subscriber isolation were added to help service providers deploy, manage and secure the network services they are delivering.

## Enhanced Security Features

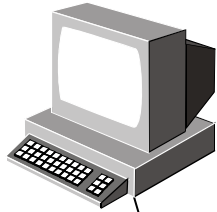
The SM24-100SFP-AH is designed to provide enhanced security and to prevent subscriber's network traffic from affecting overall network performance.

The SM24-100SFP-AH provides features such as Private VLAN, DHCP Snooping and IP Source Guard to help protect the subscriber's traffic from affecting each other. It also offers Storm Control Protection and Port Security to protect the switch from unwanted attacks and to ensure the switch CPU performs optimally.

To ensure only valid traffic is allowed through the switch the SM24-100SFP-AH includes IEEE 802.1x and L2/L3/L4 ACL rules to control traffic and validate the traffic going through the switch.



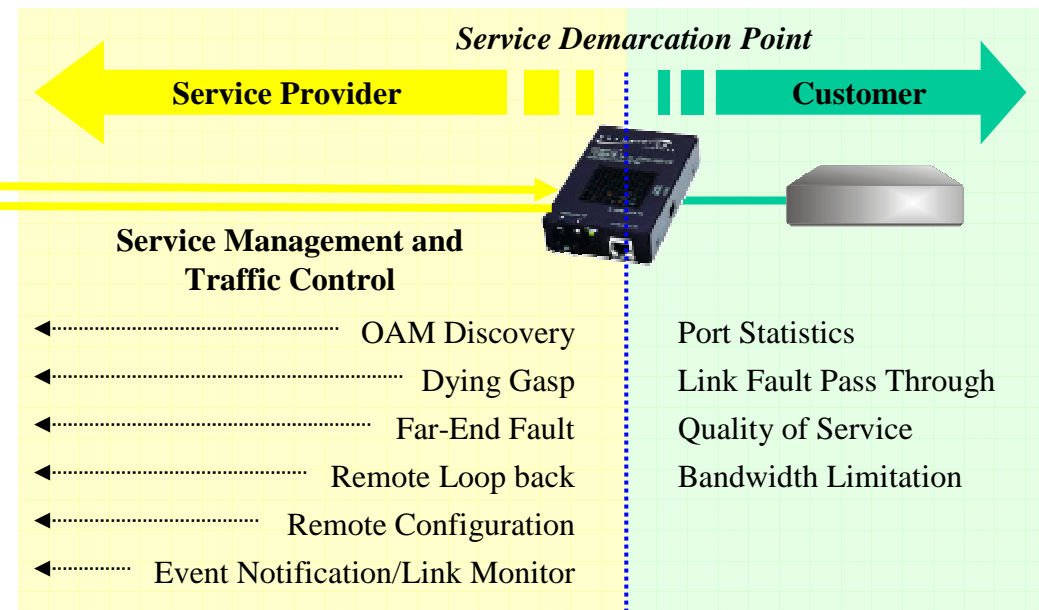
# SM24-100SFP-AH – Management Features



- ▶ **In-Band Management:** Telnet, Web-based HTTP or HTTPS, SNMP manager, or Secure Shell
- ▶ **Out-of-Band Management:** RS-232 DB-9 console port
- ▶ **Software Loading:** TFTP in-band or XModem out-of-band
- ▶ **SNMP:** Management access via MIB database, Trap management to specified hosts
- ▶ **RMON:** Groups 1, 2, 3, 9 (Statistics, History, Alarm, Event)



Up to 36 of the SM24-100SFP-AH switches can be virtually stacked and managed as a single switch while using only one IP address.



Each SM24-100SFP-AH can manage 24 remote SBFRM.  
36x24=864 802.3ah OAM Management links with just 1 IP address

# SM24-100SFP-AH – Product Features

## **VLAN Support:**

Up to 255 groups; port-based or tagged (802.1Q)  
VLANs Stacking  
Private VLANs  
Protocol-based VLANs

## **Broadcast Storm Control:**

Traffic throttled above a critical threshold

## **Multicast Filtering:**

IGMP Snooping (Layer 2)  
Multicast VLAN Registration

## **Port Trunking:**

Static trunks (Cisco EtherChannel compliant)  
Dynamic trunks (Link Aggregation Control Protocol)

## **Spanning Tree Algorithm:**

Spanning Tree Protocol (STP, IEEE 802.1D)  
Rapid Spanning Tree Protocol (RSTP, IEEE 802.1w)  
Multiple Spanning Tree Protocol (MSTP, IEEE 802.1s)

## **Quality of Service:**

Supports 4 levels of priority  
Weighted Round Robin Queuing (which can be configured by VLAN tag or port),  
Layer 3/4 priority mapping:  
IP DSCP  
DiffServ supports class maps, policy maps, and service policies

## **Rate Limitation:**

Ingress/Input limit, Egress/Output limit

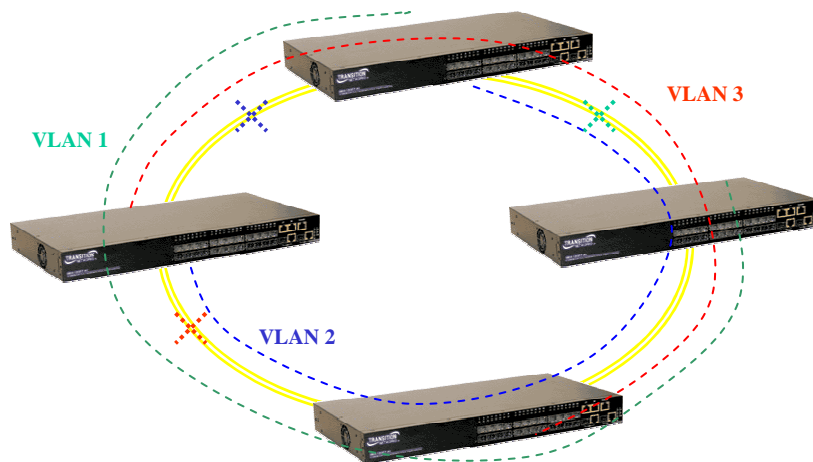


# SM24-100SFP-AH – Path Protection using MSTP

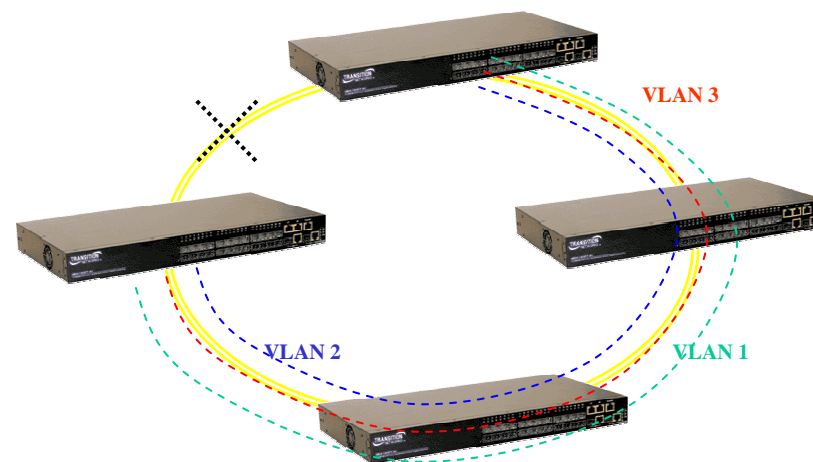
## Multiple Spanning Tree Mode (IEEE 802.1s)

The MSTP allows a user to build multiple spanning trees over VLAN Trunks. Each VLAN can have its spanning tree instances independent of other VLAN. This architecture provides multiple forwarding paths for data traffic and enables load balancing.

Network fault tolerance is improved, because a failure in one instance does not affect the other. All links are fully utilized in comparison to traditional RSTP.

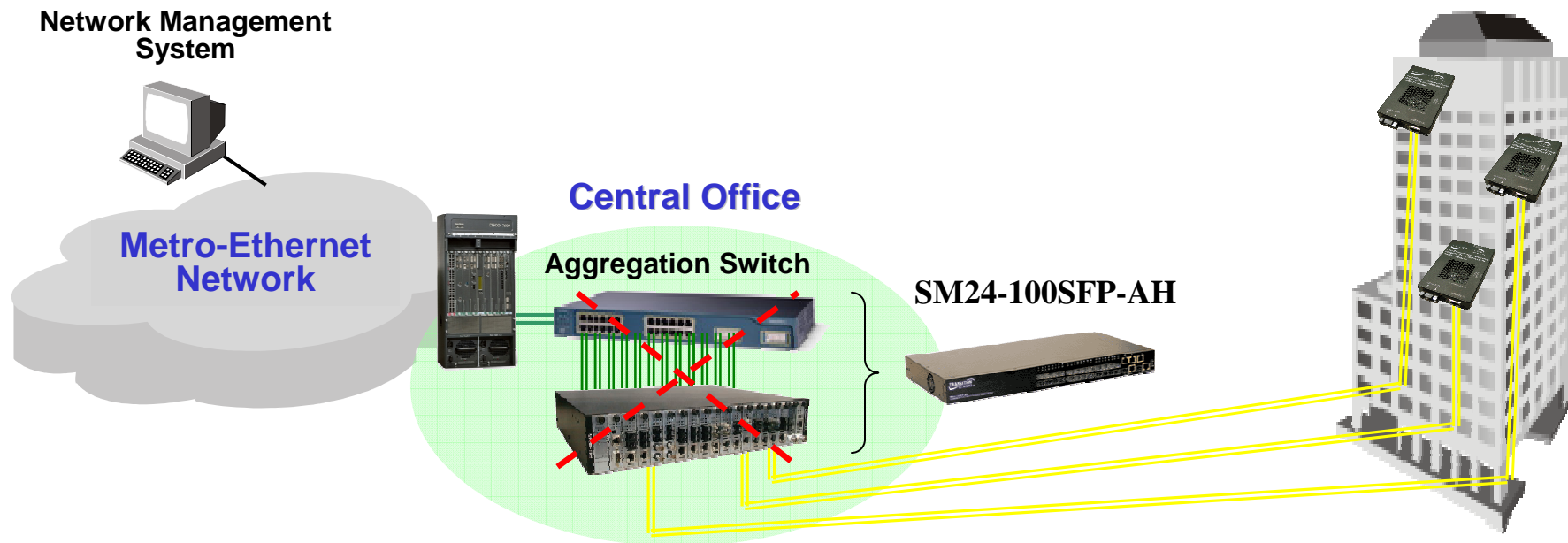


**MSTP – balance bandwidth for each link since each VLAN have its own spanning tree instance**



**RSTP – Block all traffic in a redundant path link. Bandwidth for the link is un-utilized.**

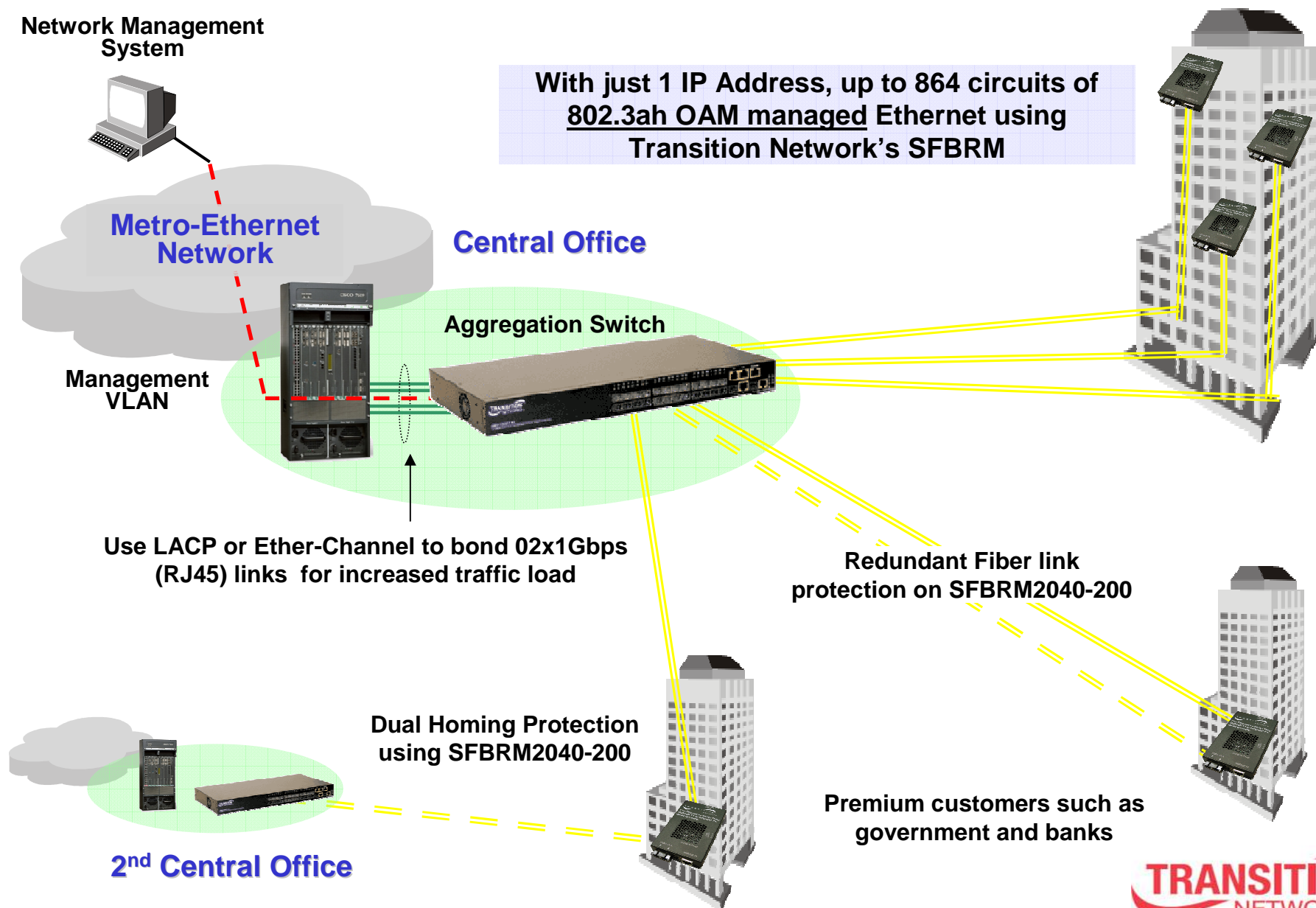
# Cost Savings



## Key Advantages:

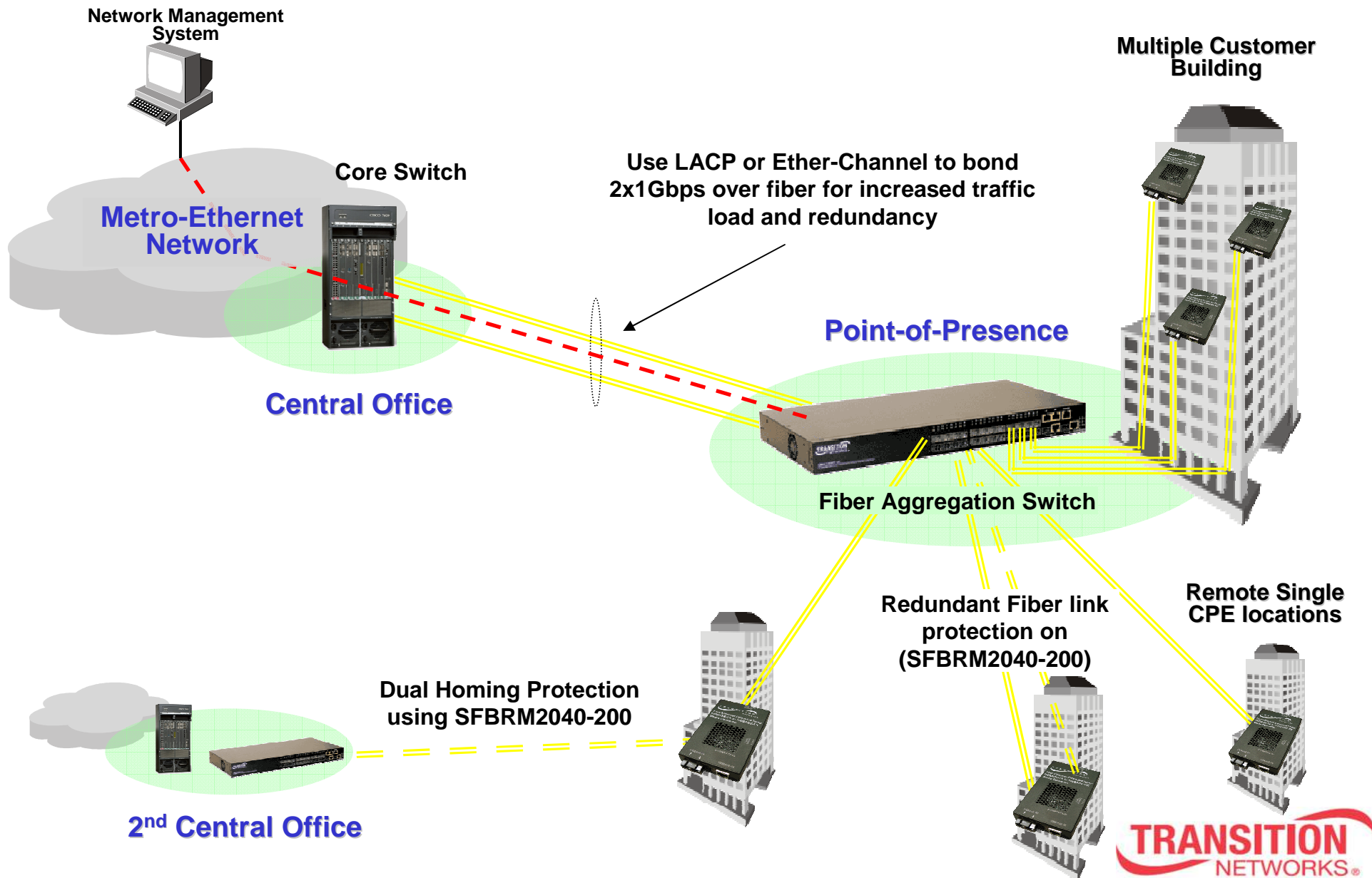
- Cost of Cisco/Alcatel aggregation switch are removed.
- Cost of Chassis Fiber Converters are removed.
- Full benefits of 802.3ah management with remote SFBRM fiber modems are available.
- Single IP management address for 864 Ethernet leased circuits
- SLA features such as VLAN, QoS, Rate-Limitation are available on the SM24-100SFP-AH
- Link protection, dual homing and Metro-Access Ring Deployment

# Typical Application





## Typical Application



# Typical Application

