

Transport and services for SS7 signaling over IP



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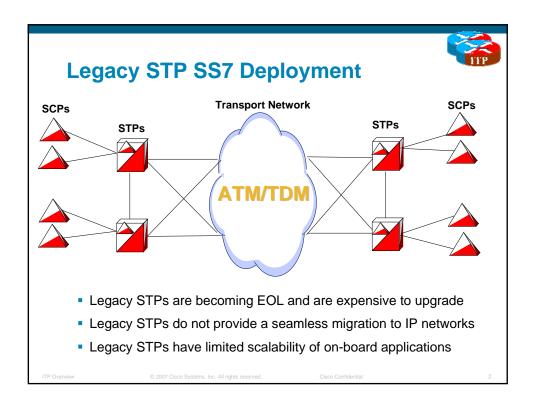
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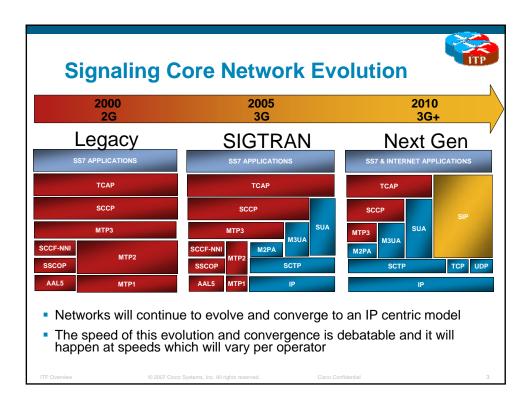
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ITP Overview V5-

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SS7oIP Benefits



Cost Efficiencies

More efficient network for SS7 transport Operationally simpler and more efficient to manage Affordable people are easier to hire

 Enables a variety of IP-based revenue- generating services/applications

Further enhanced bandwidth efficiencies Lower barriers to entry for application vendors Seamless operation over network generations

Smooth transition from 2G to 3G

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IETF SIGTRAN Working Group

 Multi-vendor group that is designing SS7oIP standards Group includes Cisco, NT, Lucent, Alcatel, Ericsson, Nokia, Siemens, Tekelec, etc.

http://www.ietf.org/html.charters/sigtran-charter.html

- Developed based on the RFC process, such as created the Internet and Web standards
- Includes SCTP, M2PA, M3UA, SUA and M2UA
 Cisco is a co-author on all of the above except SUA
 Continues to evolve with changing operator requirements

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Sigtran Protocols

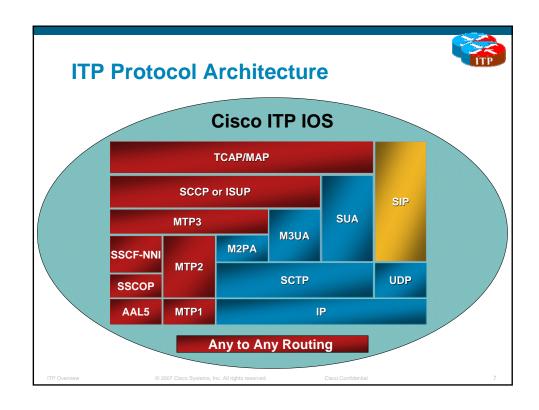
- SCTP (Stream Control Transmission Protocol, RFC2960) transport layer that provides reliable data transfer over IP
- M2PA (MTP2-User Peer-to-Peer Adaptation, RFC 4165) provides MTP3 with equivalent transport layer services as MTP2
- M3UA (MTP3-User Adaptation, RFC3332, 4666) client/server protocol providing a gateway to legacy SS7 network for IP-based applications that interface to the MTP3 layer
- SUA (SCCP-User Adaptation, RFC3868) client/server protocol providing a gateway to legacy SS7 network for IP-based applications that interface to the SCCP layer.
- M2UA (MTP2-User Adaptation, draft status) client/server protocol providing a gateway to legacy SS7 network for IP-based applications that interface to the MTP2 layer (not supported with Cisco ITP)
- Security Considerations for SIGTRAN Protocols specifies an Internet security protocol standards track (TLS/IPSEC)

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An ITP is:



- IP-enabled core STP (SS7 router) & Signaling Gateway
- Integrated high-capacity IP and SS7 routing in one box
- A core STP with:

Carrier Grade reliability with Low Power/Small Footprint
Traditional TDM-based STP and Next-generation STP
Supports integrated applications such as Number Portability
and Flexible Numbering and Equipment Identity Register (EIR)

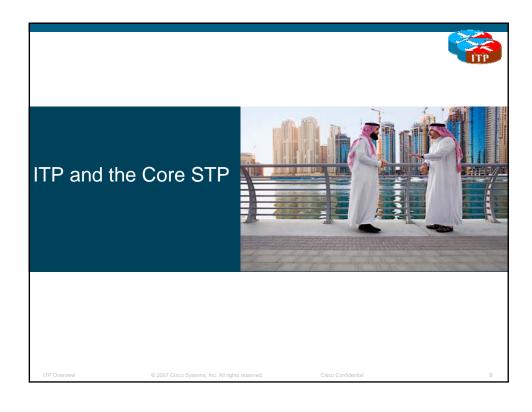
A Signaling Gateway with:

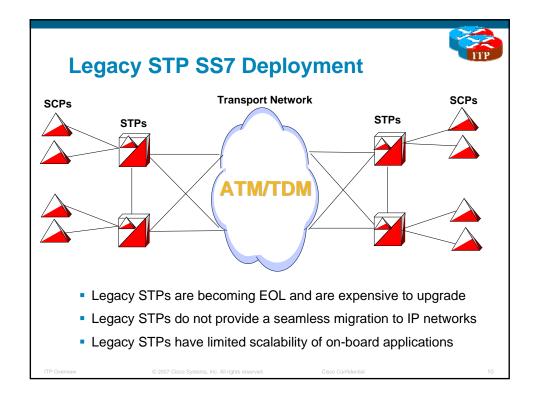
Flexible range of platforms to suit all needs
Strong SMS routing capabilities with MLR
Strong partnership with messaging and IN vendors

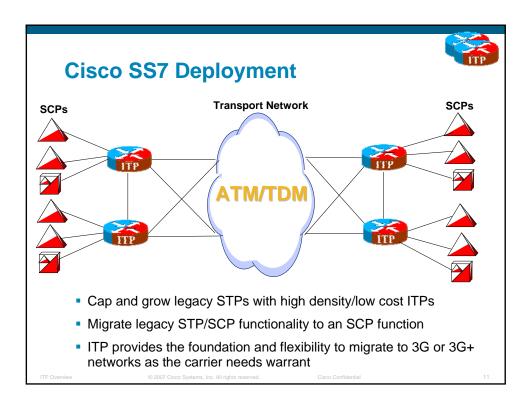
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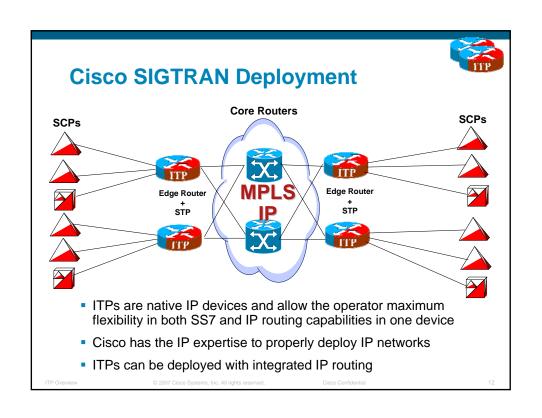
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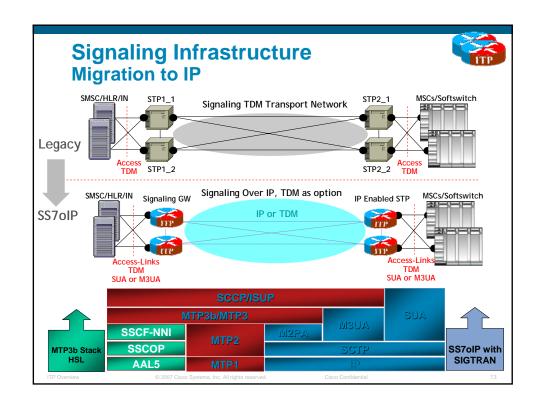
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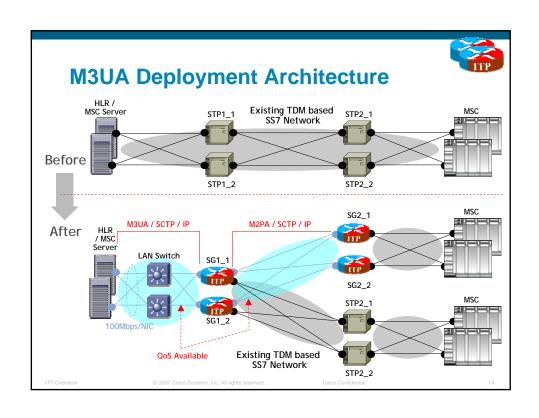


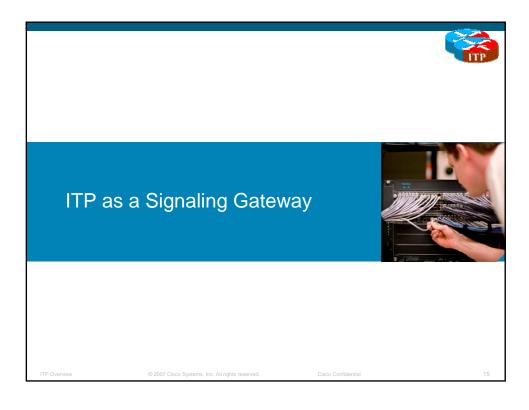


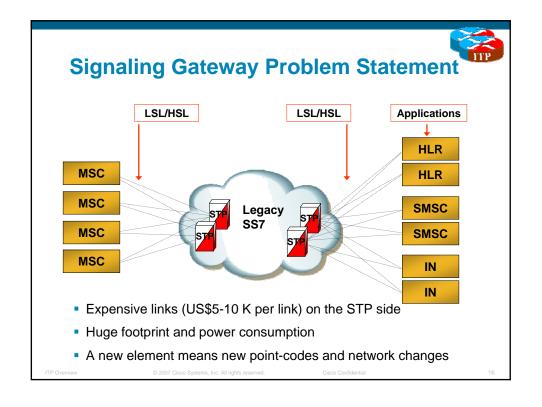


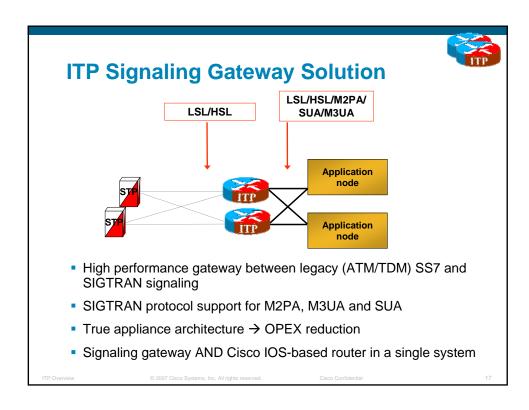


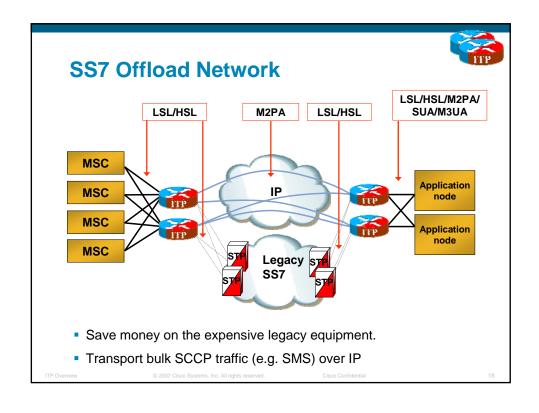


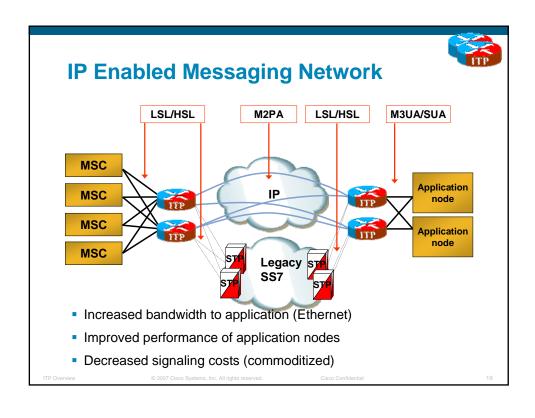


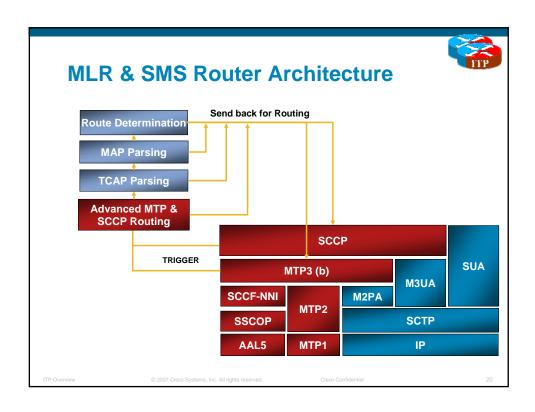


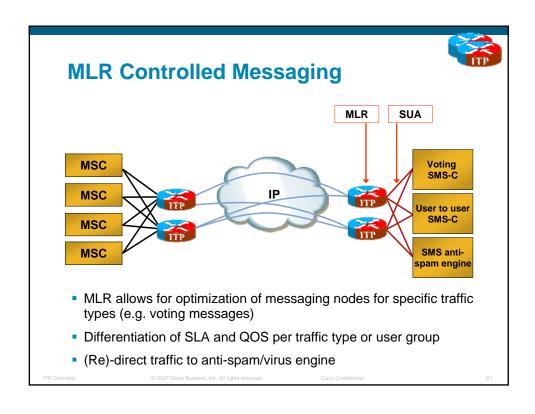


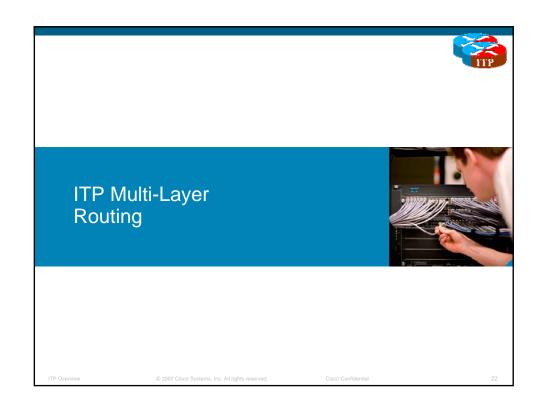


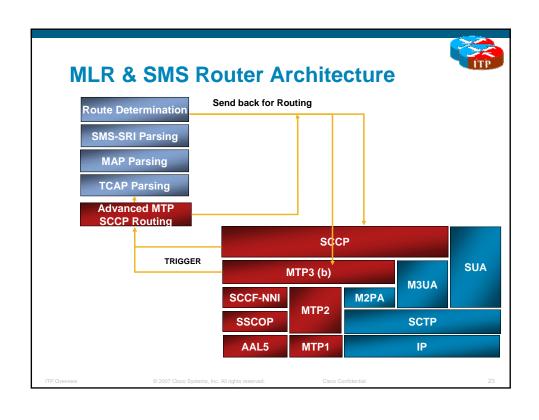


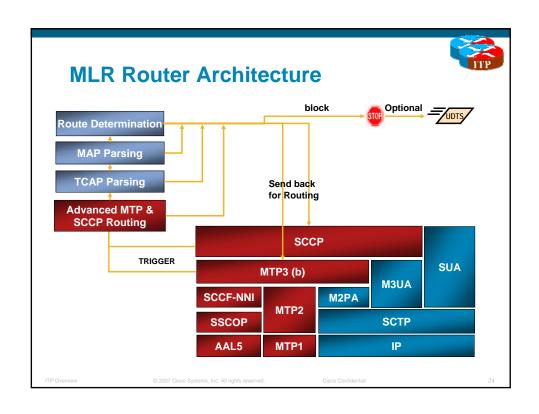














ITP Multi-Layer Routing (MLR)

- Select messages with Gateway Screening rules:
 Destination or Originating point code for MTP3
 Service Indicator (ISUP or SCCP)
 SCCP Called Party Address (GT, PC, SSN)
 SCCP Calling Party Address (GT, PC, SSN), etc
- Route messages based on a combination of: Any MAP Operation code from GSM-MAP SMS specific parameters for MO and MT SRI-SM specific parameters
- Distribute messages to a server group using weighted round-robin or B-address binding hash
- Servers may be connected via TDM, HSL or SIGTRAN links
- Optionally modify SCCP Calling or Called Party addresses (and some MAP addresses)

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ITP Multi-Layer Routing (MLR) - results

Result can be:

New SCCP GT, Point Code, SSN, xUA ASNAME, server group

Server group can load-shared by weighted round robin or a B-address hash

Result Action can be to: BLOCK, CONTINUE or ROUTE

- BLOCK is used for MLR based screening: Example of use is "ITP-only" anti-spam
- ROUTE is used for onward routing:

Example of use is SRI interception for flexible numbering

Manage roaming traffic or traffic from broadcast events

Intercept of INAP, CAMEL, MAP traffic for MNP

CONTINUE = more rules to process

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