

Reservation Element: Enabler for BoD services Young Lee

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Outline

- Technology evolution
- Reasons for slow progress toward BoD services
- Review of connection service modes
- Reservation Element as an enabler for BoD services
- Conclusion

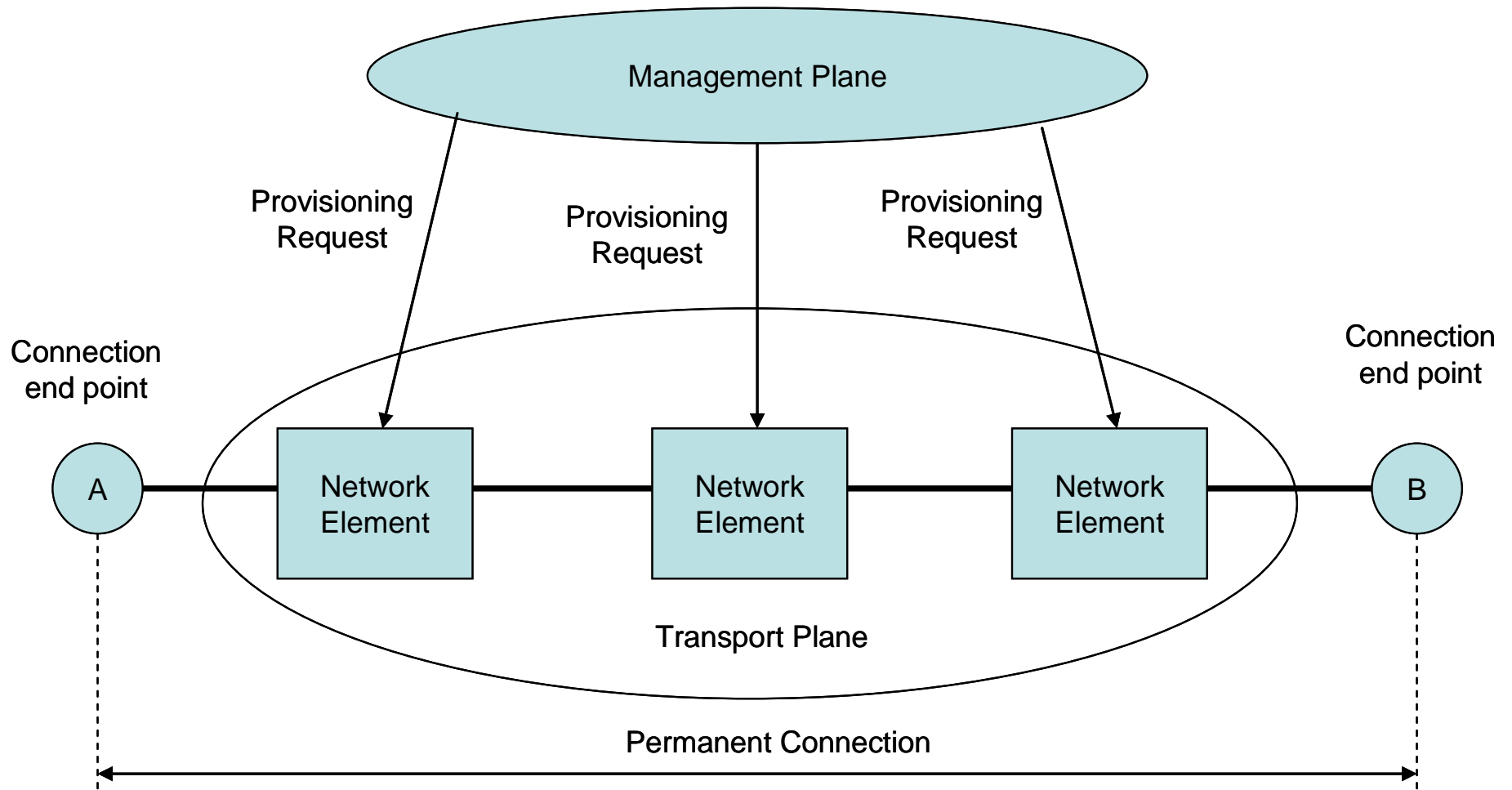
Technology Evolution

- BoD has been an elusive goal for many years in network technology standardization:
 - **ATM** and **Frame Relay** have the capability to provide switched bandwidth services.
 - **MPLS** (Multi protocol Label Switching) also has the capability to dynamically setup path for switched bandwidth services.
 - **GMPLS** (IETF)/ **ASTN/ASON** (ITU)/ **UNI/NNI** (OIF) standards all have control plane capability to provide switched bandwidth services.
- However, switched bandwidth services have not been widely deployed in carrier's network. Why?

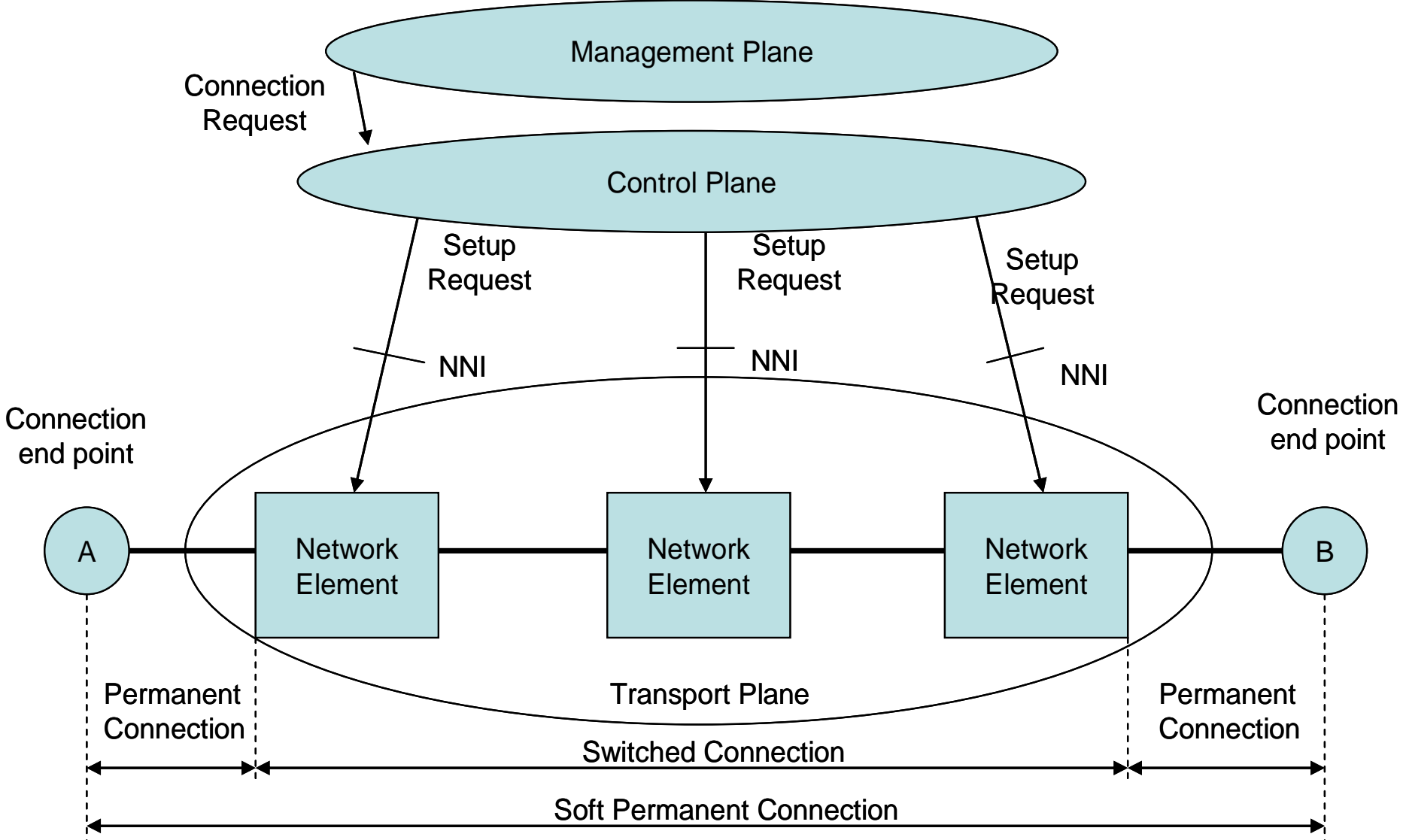
Reasons for slow progress toward BoD services

- Economic Factor
 - Carriers sell private line services which are very profitable
 - Value proposition of BoD services for carriers is yet to be fully understood
- Lack of Automation
 - Key elements to enable BoD services (e.g., billing, contract, SLA, back-end support system and OSS) are manual and take a long time (up to few months) to allow customers to dynamically setup and take down services.
- Limited Scope of Control Plane Capability
 - The control plane (e.g., signaling) is focused on establishing dynamic connections across trust domains.
 - How to establish trust domain and business relationship between the user and the carrier is beyond the scope of control plane standard work.

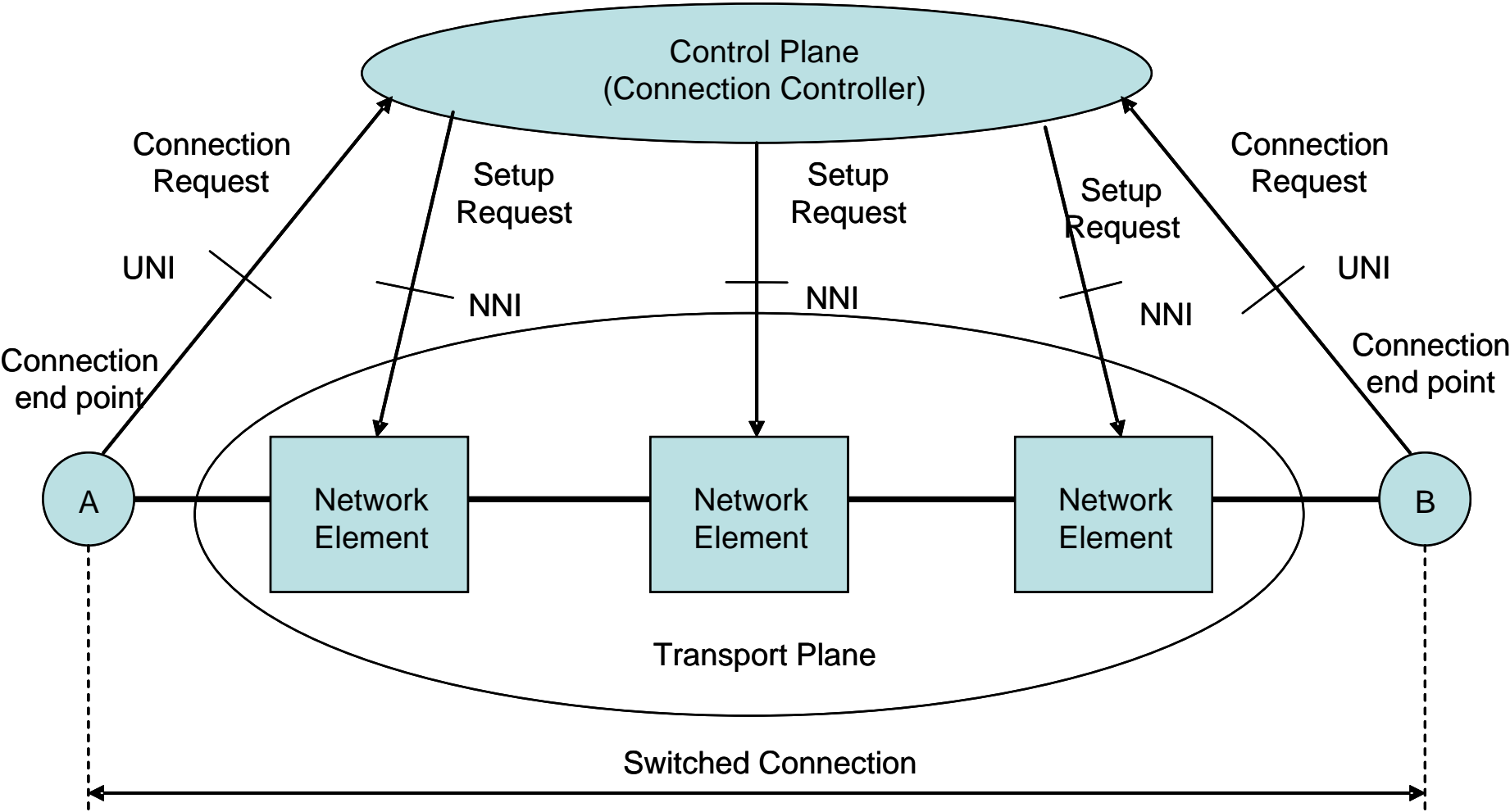
Permanent Connection (PC)



Soft Permanent Connection (SPC)



Switched Connection (SC)



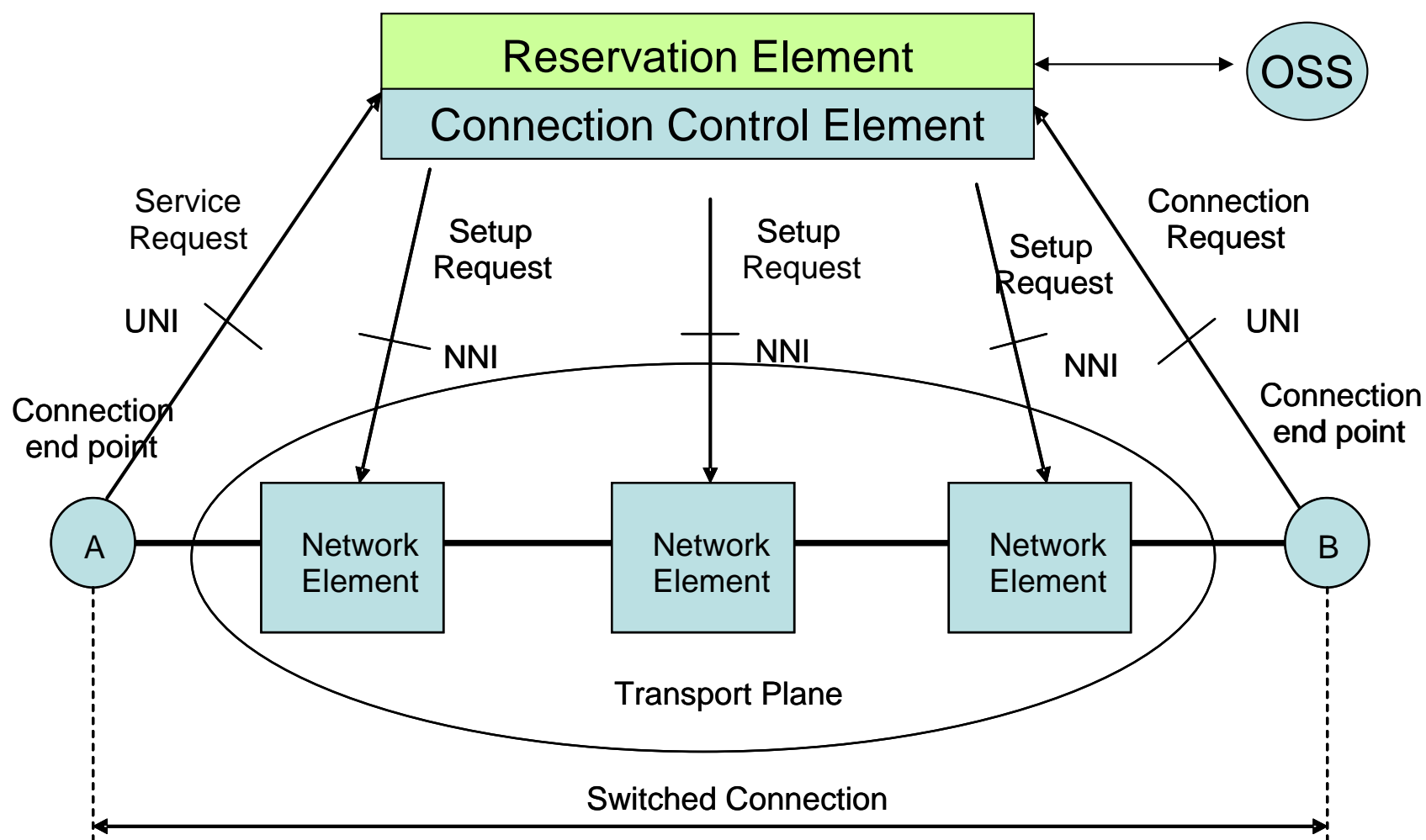
Observations

- Today's Connection services are either permanent connection or soft permanent connection.
- Switched Connection service is not widely deployed although Control Plane Technology is mature to enable dynamic switched connection.
- Many services are not completely instant based. There is a tremendous opportunity to provide time-based and reservation-based services via the Reservation Element (RE).
- From service request to dynamic bandwidth provisioning, an automatic business/service process is needed to offer BoD services.

Reservation Element (RE)

- Reservation Element (RE) is a component either in the control plane or management plane to enable BoD services that provide:
 - Allow user specifying a service ahead of service time
 - Validate a service request
 - Interact with OSS for security, billing and trust-relationship establishment
 - Store service requests
 - Initiate bandwidth request to connection controller (control plane function) when service time arrives
 - Able to handle time based bandwidth request

Reservation Element enabled Control Plane for Switched Connection



Conclusion

- Network technology is mature to enable BoD service.
- Need to develop new service offerings such as time and reservation-based services as part of BoD service offering
- Need to standardize business/service intelligence element such as Reservation Element (RE) possibly in the current control plane technology to be able to offer a complete solution toward BoD service evolution.