

# Assured Network Delivery

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Air Force MOIE

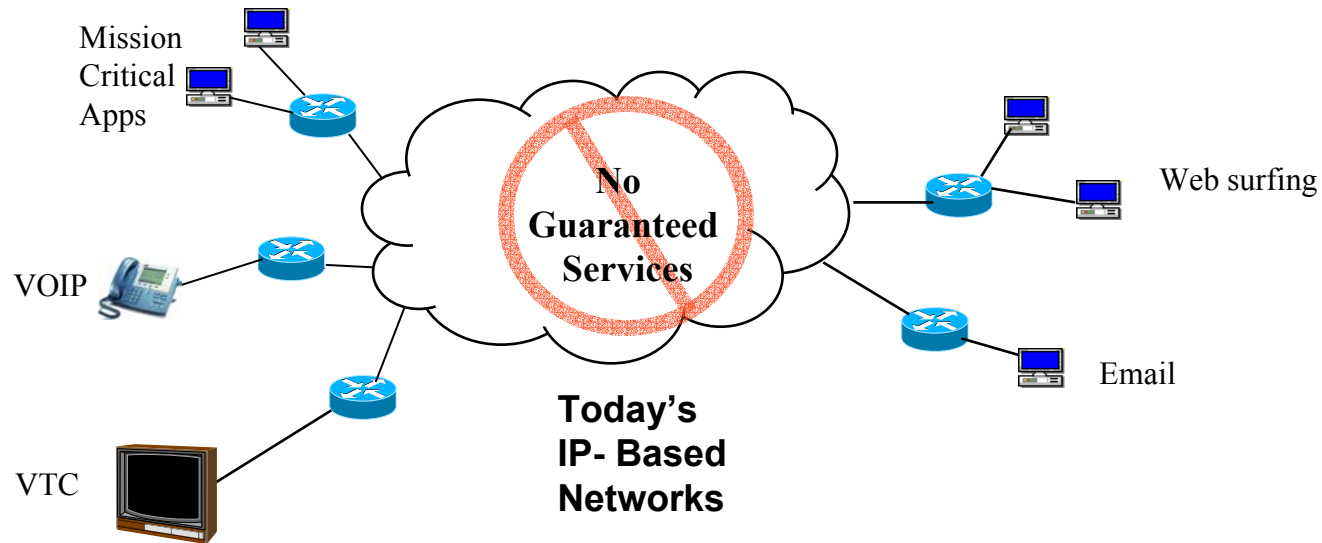
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# Problem

- **Problem: Having predictable network services under high stress is a key problem in today's IP-based networks.**
  - **Class of service enabled IP networks, while improving the likelihood that mission-critical applications will succeed, still exhibit non-predictable behavior and can fail during crisis and heavy network volume situations.**

# Background



**No predictable IP-based end-to-end network services exist today.**

# Objective

- **Explore and enhance two emerging technologies that can potentially provide true end-to-end quality of service and predictability of performance under all conditions of network congestion**
- **To meet this objective, one must be able to request this service from an end-to-end perspective, as well as “provision” the service while addressing management issues.**

# Activities

## ■ Real-time IP services

- Explore concepts of real-time IP networks that utilize reserved time slotting to reserve bandwidth, constrain latency, and minimize jitter and loss
- Develop a sequence (policy) manager that establishes this end-to-end service

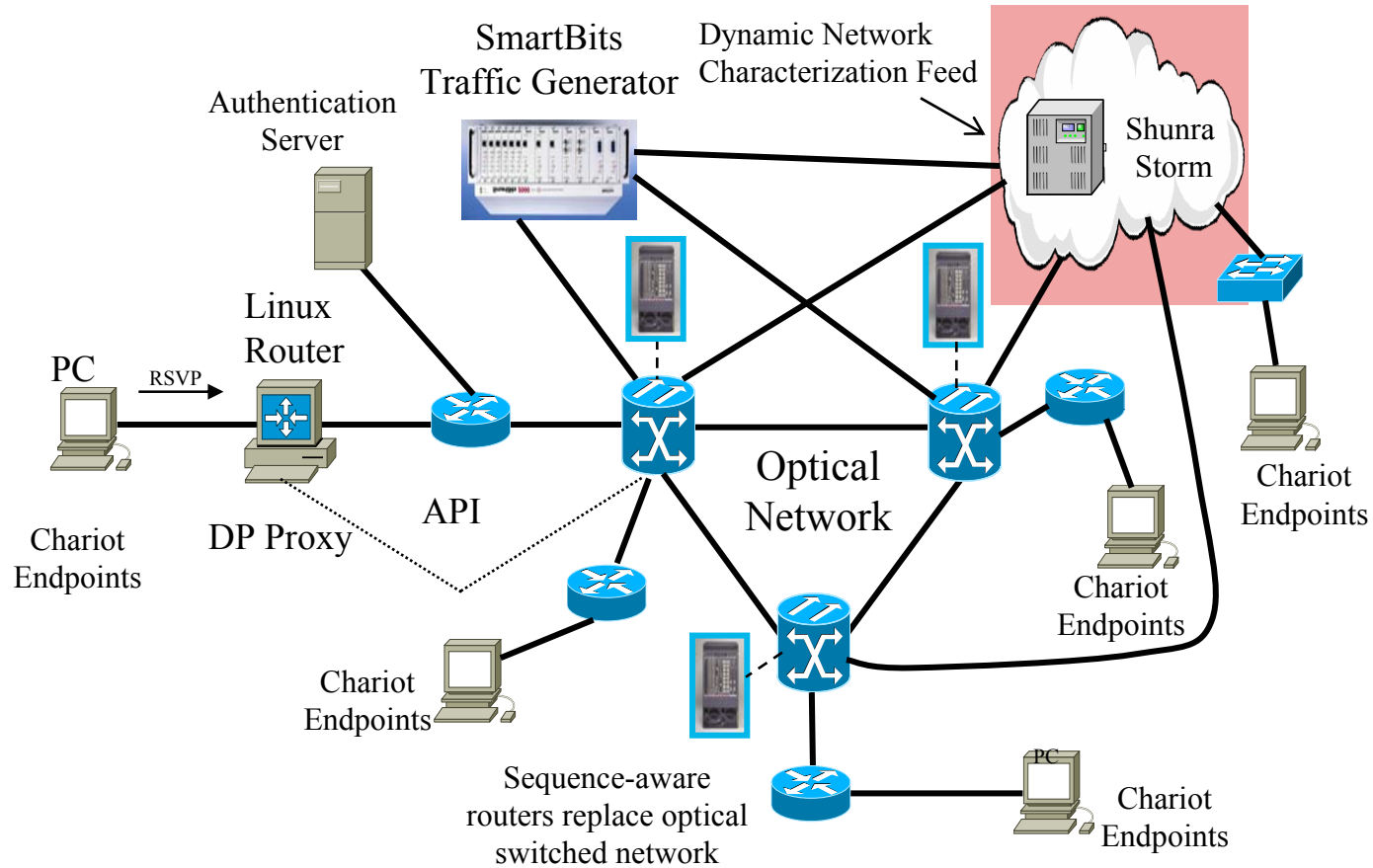
## ■ Dynamic provisioning of optical switched network

- Develop a dynamic provisioning proxy that works with RSVP to permit applications to “lease” a circuit in real time (for the session duration)

## ■ Security Task

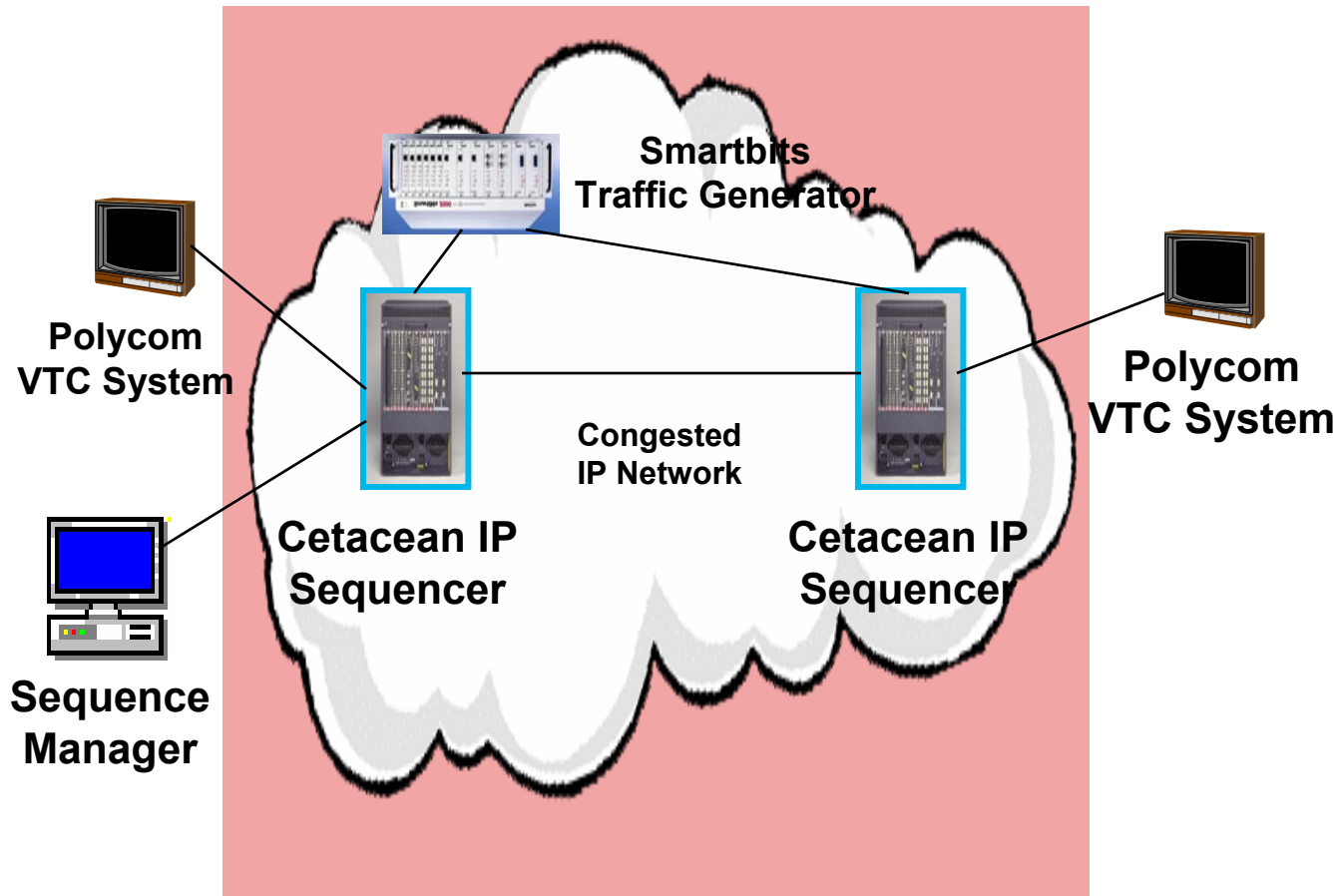
- Implement IP spoof-proof network and provide flow management capability to control brute force flooding attacks (denial of service)

# Highlight



## Assured Network Delivery Testbed

# Demonstration

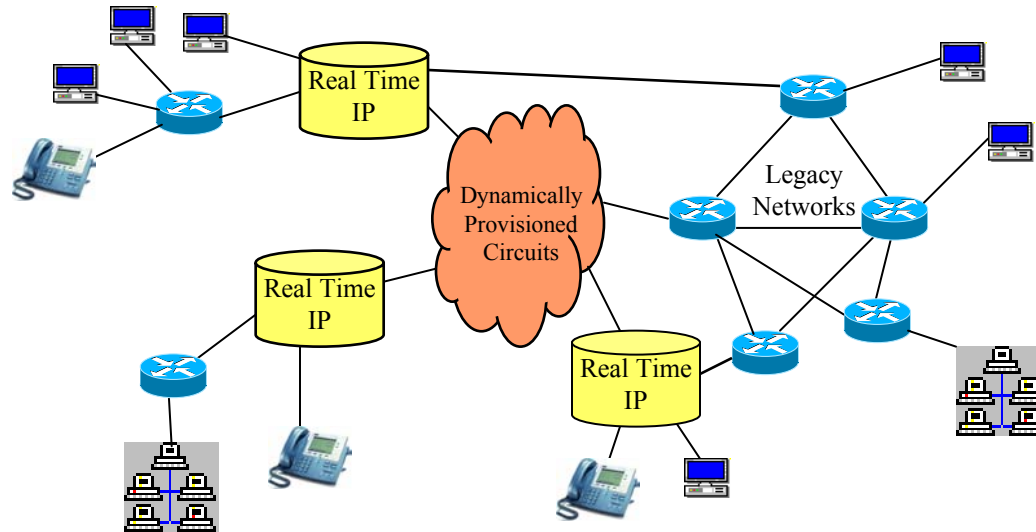


- View conventional video stream through congested IP network (poor)
- Sequence manager “sequences” the video stream (isolating it from other non-mission critical streams)
- View sequenced video stream through congested IP network (good)

# Impacts

- **Dissemination of on-demand information over predictable IP-based network**
  - Reliably manage mix of TCP and UDP traffic
  - Provide predictable services over wide area networks
  - Enables convergence of data, voice, and video
- **Sponsored projects: Millennium Challenge, DCGS, Desert Falcon, DISA support to SIPRNET/NIPRNET, FCS**
- **Industry: Vendors developing real-time networking capabilities**
- **Standards bodies: IETF (Internet Protocol)**

# Future Plans



**Integrate real-time IP services with dynamically provisioned circuits and legacy networks**