

Assured Network Delivery

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Air Force MOIE

The logo for the MITRE Technology Program, featuring a stylized graphic of stacked blocks in yellow, orange, and blue to the left of the text.

MITRE
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Program

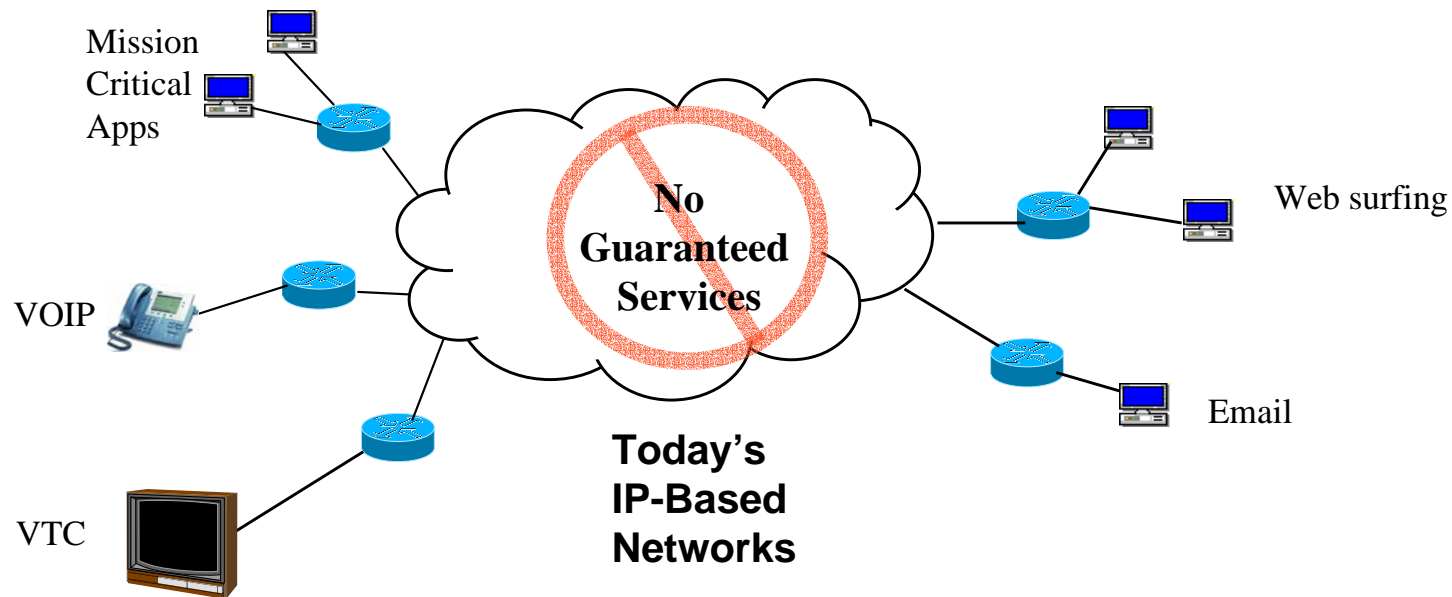
The MITRE logo, consisting of the word "MITRE" in a bold, black, sans-serif font.

MITRE

Problem

- **Having predictable end-to-end network services under high stress is a key problem in today's IP-based wide area 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.

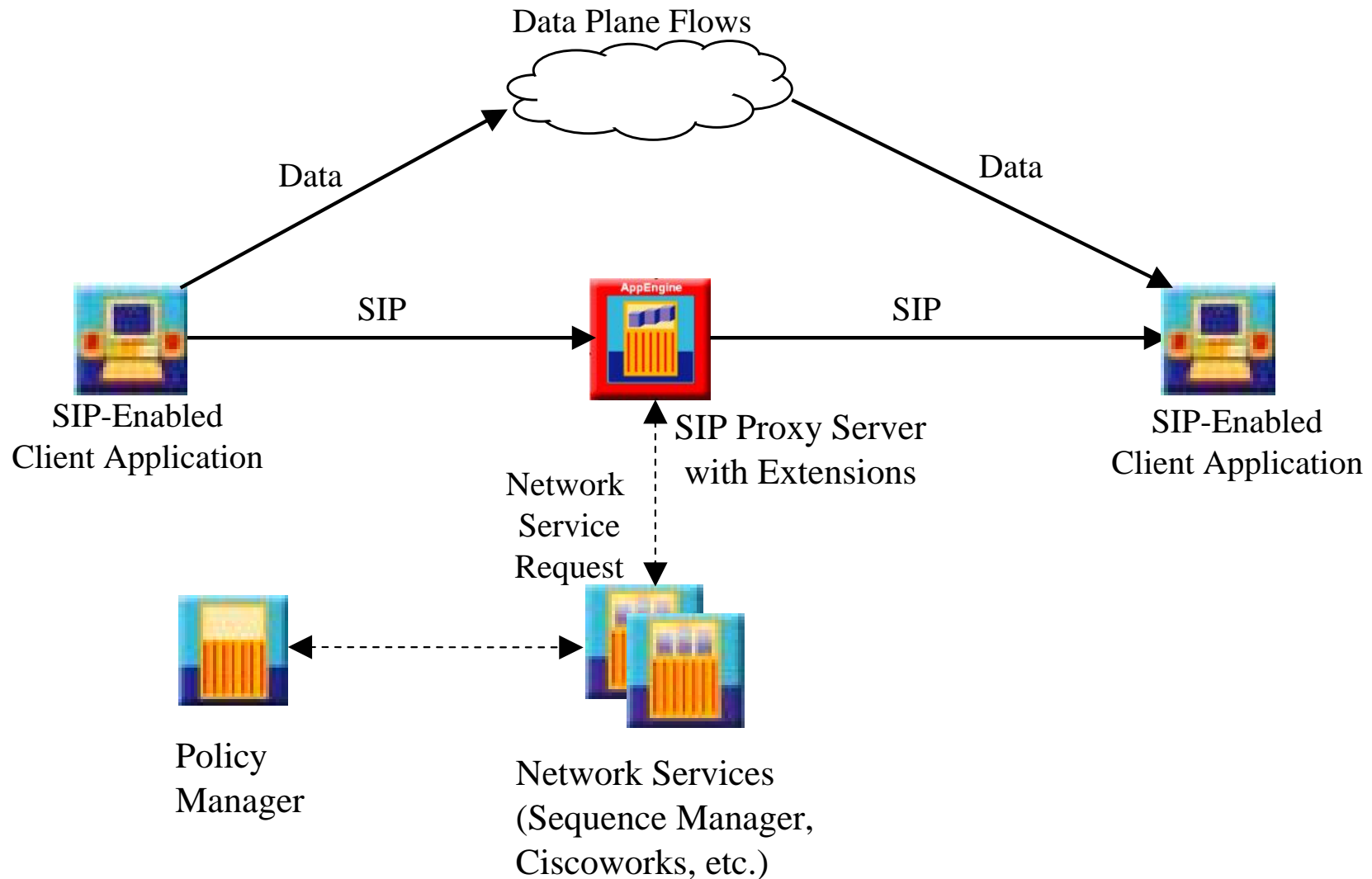
Objective

- **Explore and enhance 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

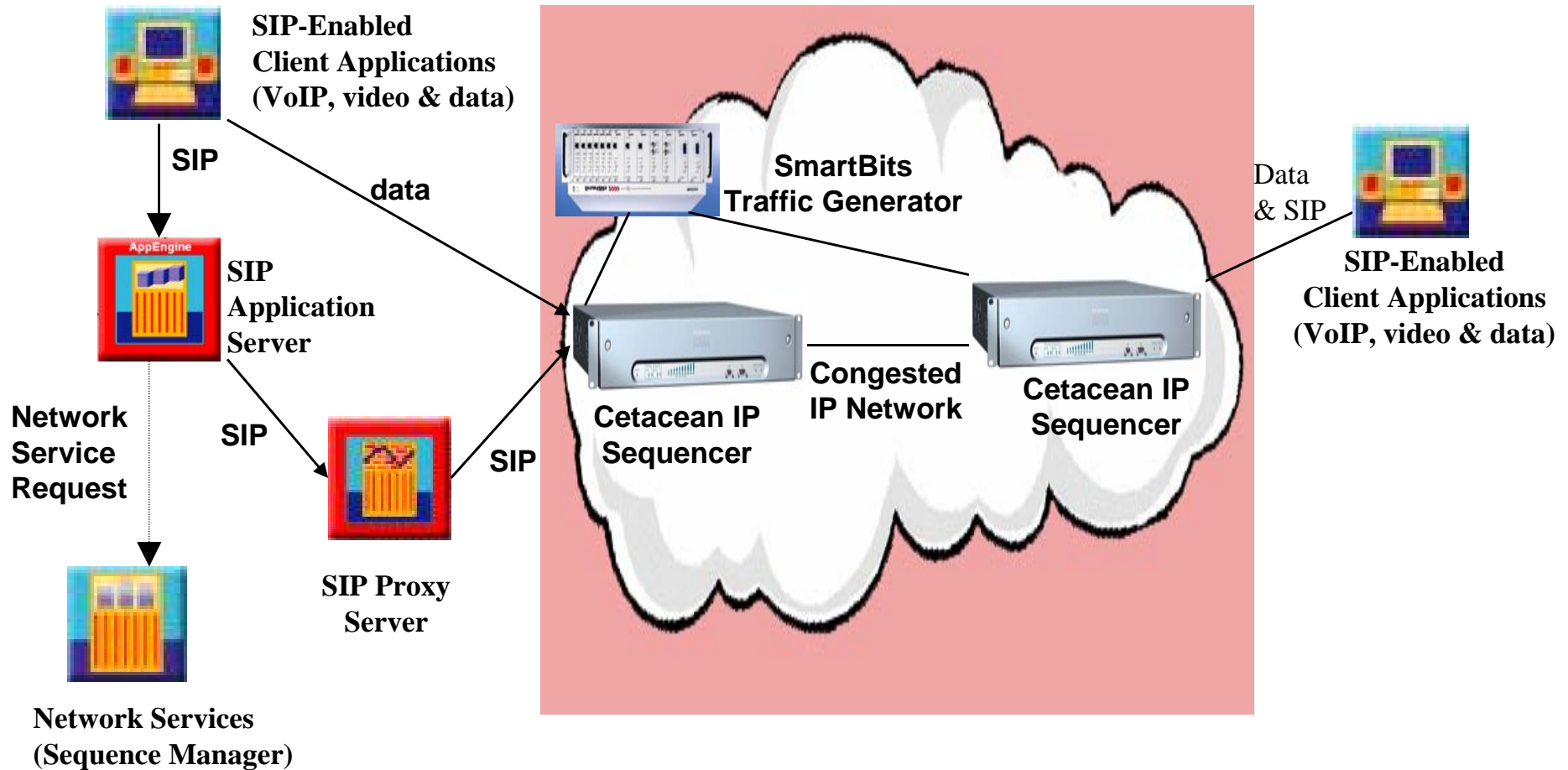
- **Developing a Session Initiation Protocol (SIP)-based architecture to provide end-to-end guaranteed services**
 - **SIP was chosen because it is known to be scalable, extensible, and flexible.**
- **Develop application server that will translate SIP messages into network service requests**
- **Develop policy manager that controls resources and guarantees services to mission-critical applications**

Highlight



- Architecture uses extensions to the Session Initiation Protocol (SIP) as the primary mechanism to request and provide end-to-end service.

Demonstration

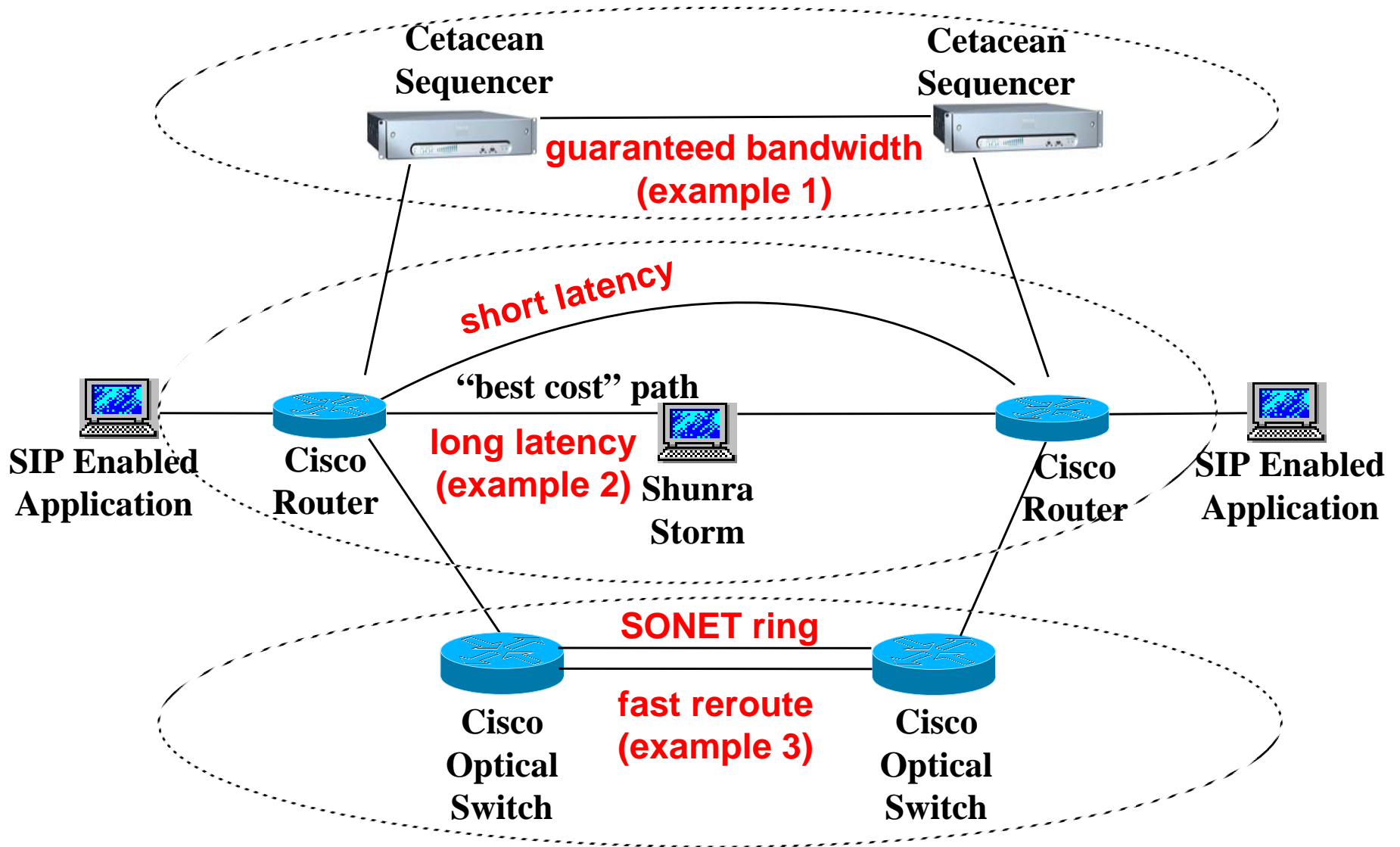


- Use SIP Architecture to request and provide guaranteed network services for SIP aware applications (VoIP phone) and non-SIP aware applications (video and data applications)

Impacts

- **Enable mission-critical applications to work reliably over wide area networks under congested conditions**
 - **Distributed operations require this capability**
- **Enable convergence of voice, video and data**
- **Guarantee end-to-end performance**
 - **Prevent TCP starvation**
- **Potential Programs: DCGS, AOC-WS, CITS, FCS, DISA support to SIPRNET/NIPRNET**
- **Industry: Vendors developing RT networking capabilities**

Future Plans



- Explore potential implementations using multiple network technologies