Active Networking at Washington Univ.

Project Goal

Design and Implement a Prototype of a Scalable, Active Networking Platform supporting Traffic at Gigabit Rates

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Goals

• Building a High Performance Active Network Platform consisting of
  – Scalable Hardware Platform
  – Distributed Code Caching
  – Streamlined Software Platform

• Applications
  – Automatic Network Protocol Deployment / Revision
  – Large-Scale reliable multicast
  – Congestion control for real-time video and audio
  – High-performance media gateways for real-time multicast audio/video sessions
Active Network Processing Element (ANPE)

Pentium CPU
>= 32 MB
APIC: 1.2 Gbit/s (Out for Fab)
Experimental FPGA added to data path

Development System has been built and is being tested.

Problems with the embedded system programming environment have been uncovered and are being pursued with the vendor.

FIXED
Status: ANPE Software

- Modules and APIs all defined
- Implementation has begun
ANPE Software Using ABone

Anetd detects ANTS identifier and passes packet on to ANTS

ANTNS
Java Virtual Machine

IP
RSVP/SSP/Route
IPv4/6 forwarding

DAN
DAN Plugin Management
Active Function Dispatcher
Plugin Control Unit Instances
Class X
Class Y

Packet Scheduler
Packet Classifier + routing
Selector Dispatcher

Network Device Driver

User Space
Kernel Space

Resource Controller
CPU Usage
Time
Plugin Instance processes packet and passes resulting packet to output via Packet Scheduler.