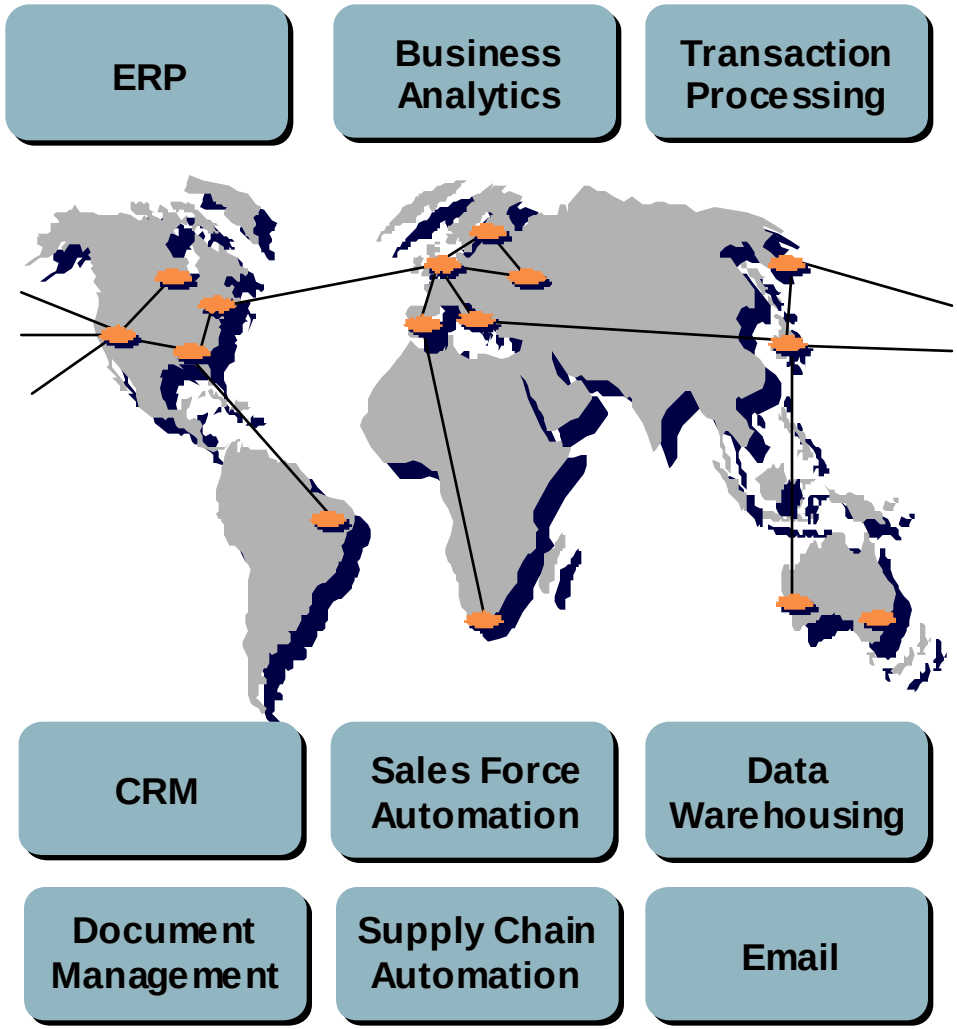
N+I 2004

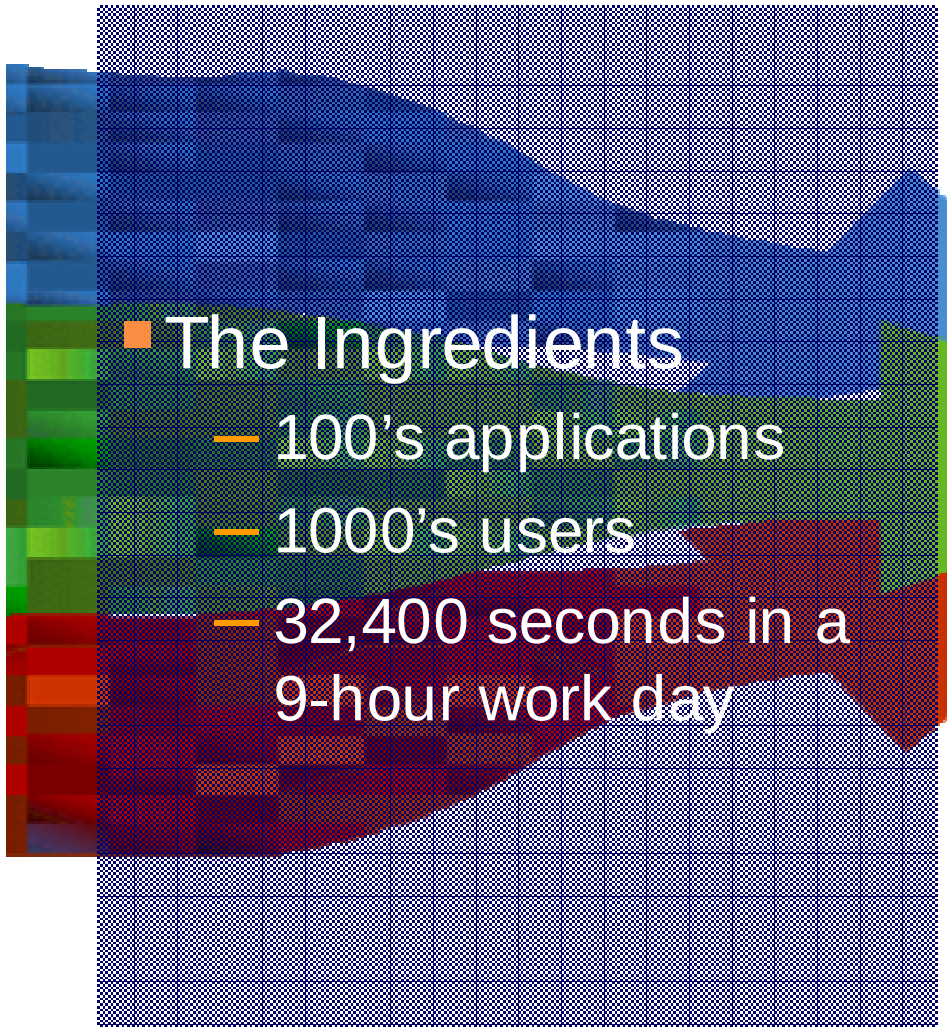
PACKETEER®

Business Depends On Networked Applications

- Increasing IP-based application dependence on the WAN and Internet
- Responsive applications are critical too success
- Increasing application performance problems due to congestion at the LAN/WAN edge



Congestion: Product of a Dynamic Network



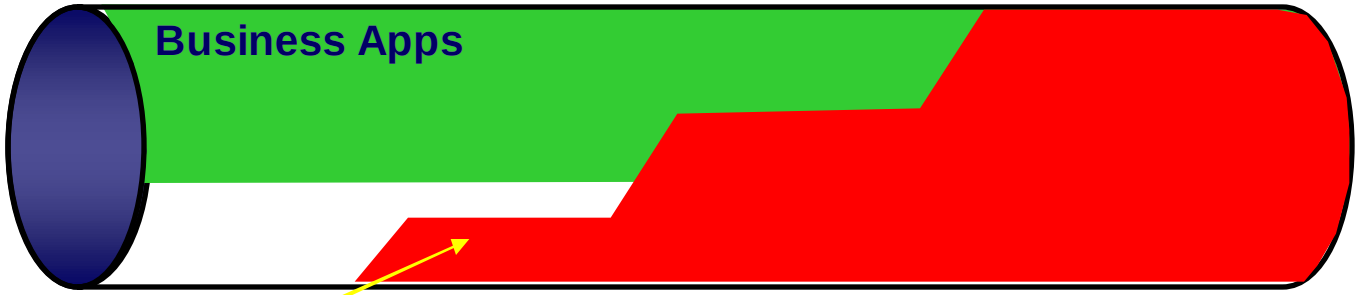
- The Ingredients
  - 100's applications
  - 1000's users
  - 32,400 seconds in a 9-hour work day

- Major news event
- Large file e-mailed to a large group
- Video Over IP session
- Download of a movie preview
- Download of a song
- Unknowing upload of a file
- Slammer-type attack traffic loads the network
- New operating system version
- Service Pack updates

Traffic Across Your WAN and Internet
Audio Feed

PACKETEER

T1
1.5 Mbps

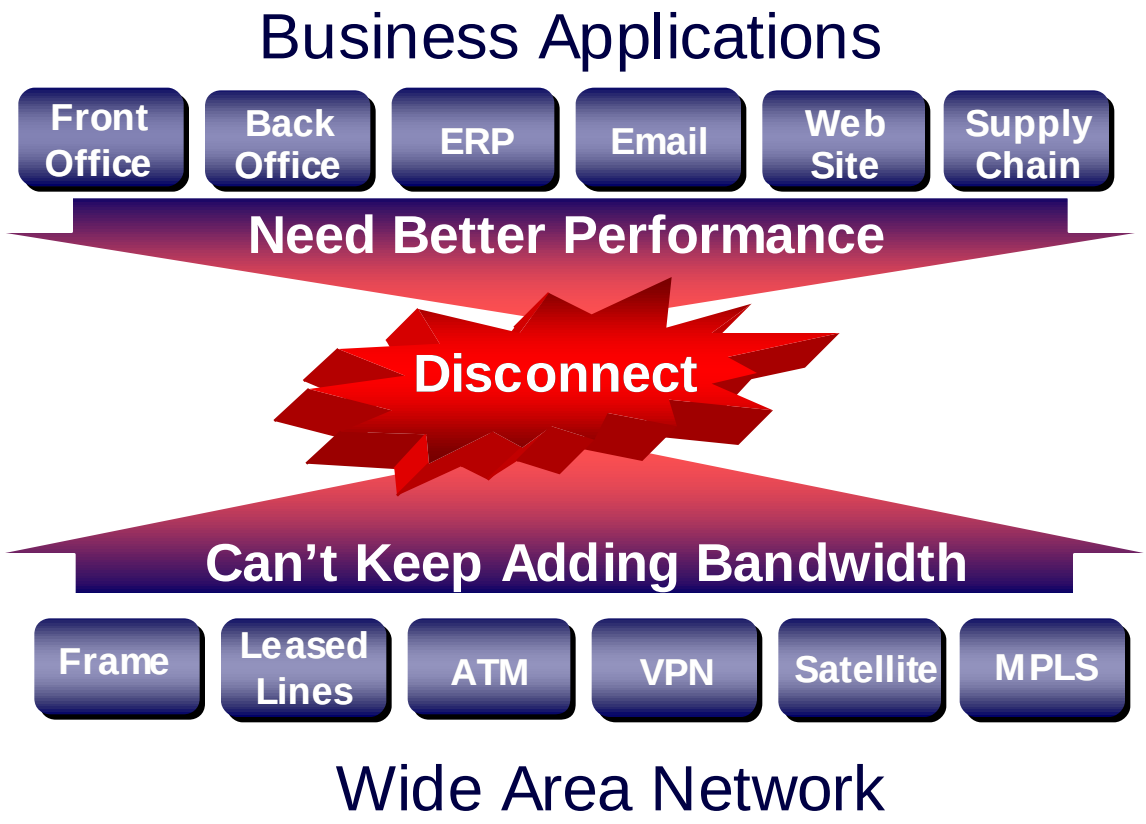


A single 350 kbps feed from Launch.com or Yahoo takes ~20% of a T1

1 or 2 users can take up 1/3 to ½ of the bandwidth of a smaller circuit with streaming radio

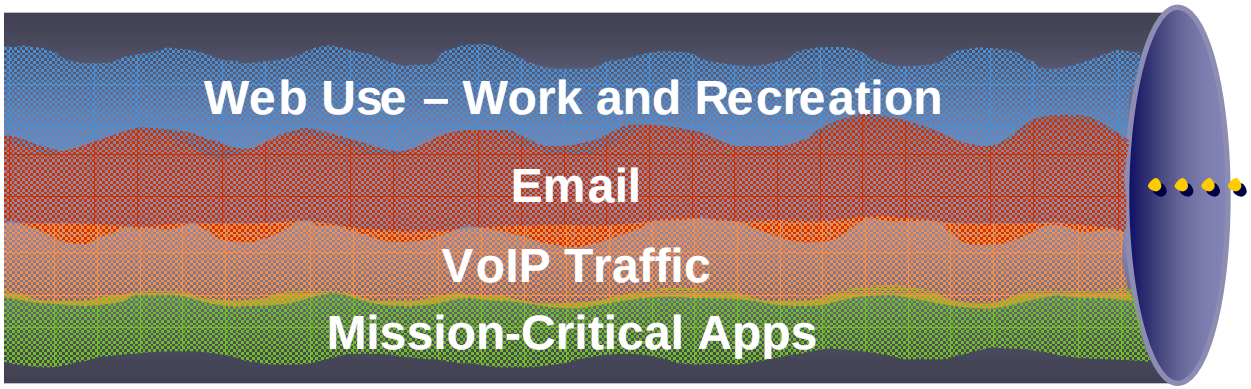
Frame Circuit
64-256 kbps

The Network Vs. Application Problem



Organizations must align network resources with business needs

The Impact on the Business



- Mission-Critical Applications Fail
- Little Knowledge of Applications and Their Effect on Traffic
- Users Lose Productivity, Are Dissatisfied
- Network Use and Spending Not Aligned with Priorities

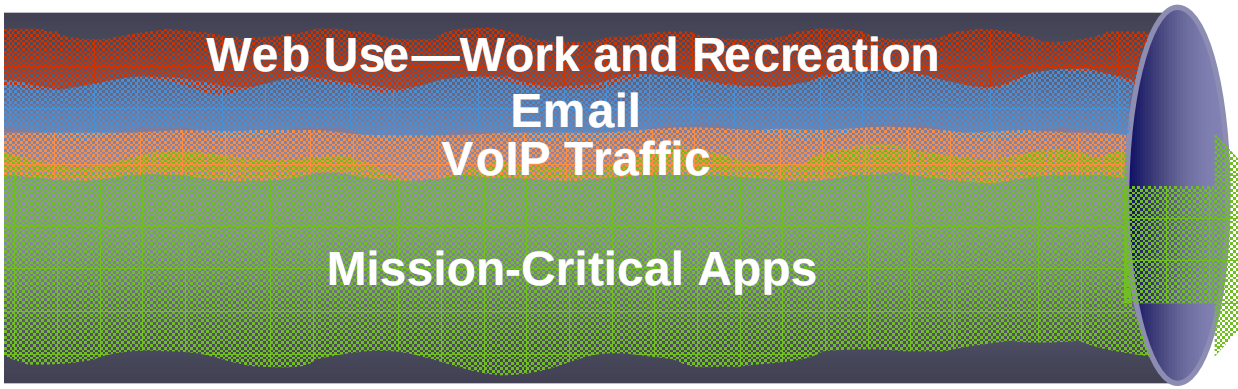
Recent Survey Confirms

PACKETEER

- 84.6% Experienced Significant Application Performance Degradation
  - 51.3% Said Problems are on the Rise
  - 23.1% Said Problem Reports are Unchanged
- 75% Don't Know What Applications are Running on Their Networks
- Top Concerns
  - Worms/Viruses – 94.1%
  - Web Traffic & Downloads – 84.9%
  - Media Rich Email & IM Attachments – 76.4%
  - Service Packs & Software Upgrades – 76.3%
  - Web Traffic Associated with Major News – 68.8%
  - Streaming Media – 67.4%
  - Video/Voice over IP – 65.1%
  - Peer to Peer Music Downloads – 64.4%

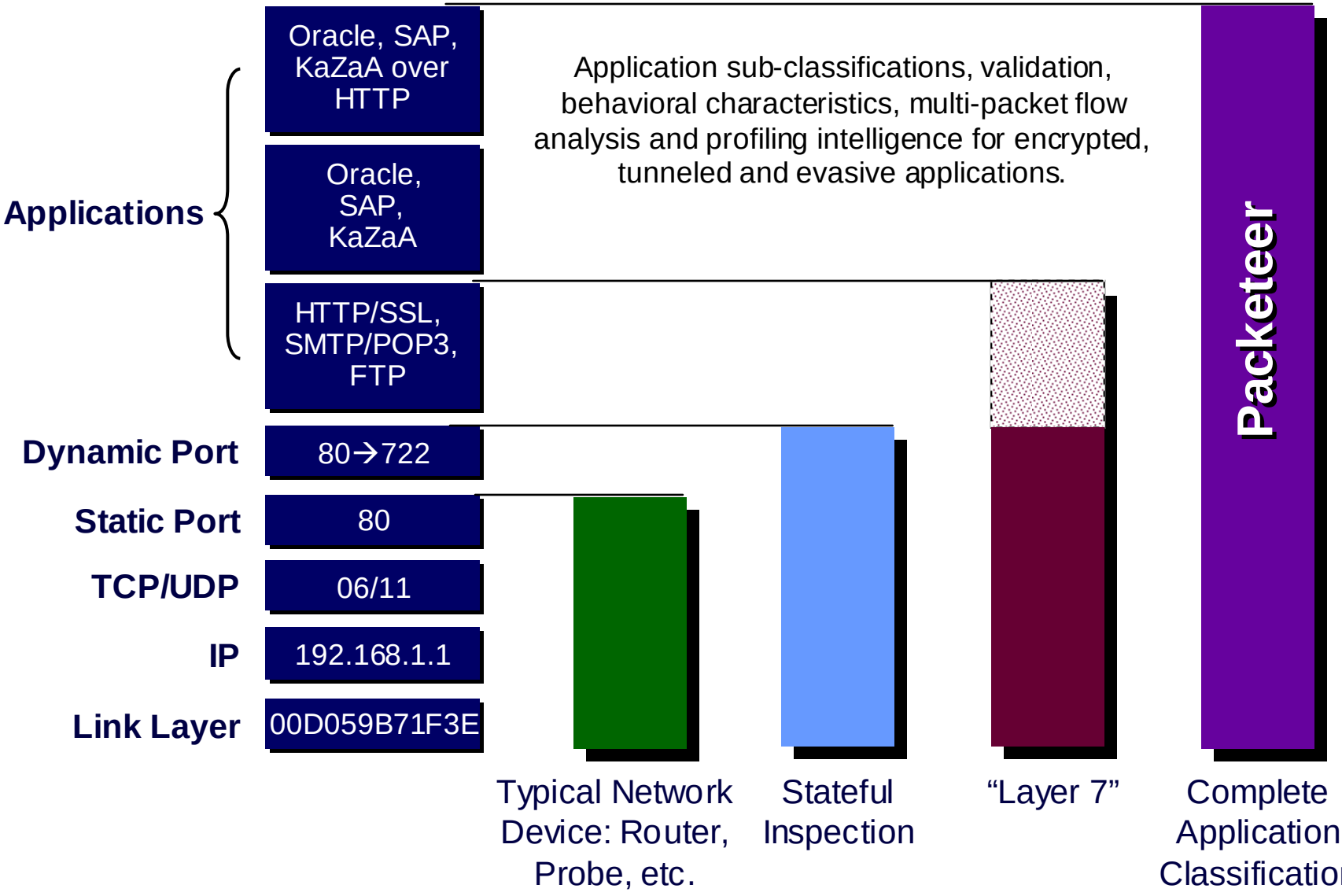
Source: Network World Application Performance Survey -2003

Ensuring Predictable Performance



- Knowledge of What's Running On Your Network
- Ability to Pinpoint Application Performance Problems
- Capacity to Control Application Performance
- Ongoing Visibility into Performance Changes

Application Intelligence

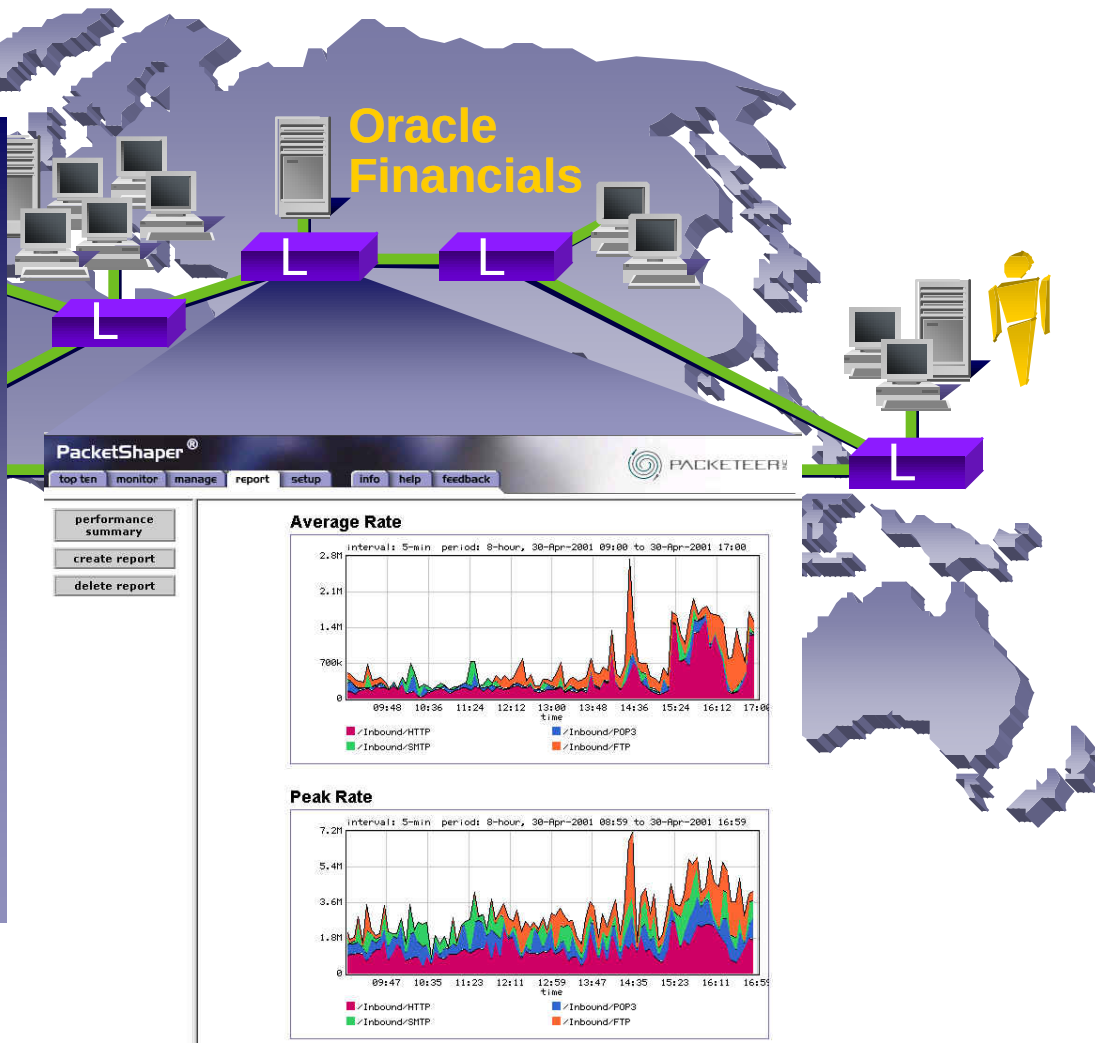


Performance Analysis

PACKETEER

Network Performance Monitoring

- Utilization (Average & Peak)
- Network Efficiency
- TCP Health
- Top Talkers / Listeners
- Active Flows
- Traffic History
- Packet Capture



Performance Analysis

PACKETEER

Throughput Reduction

Surge in Connection Attempts

Many small packets

Performance Analysis

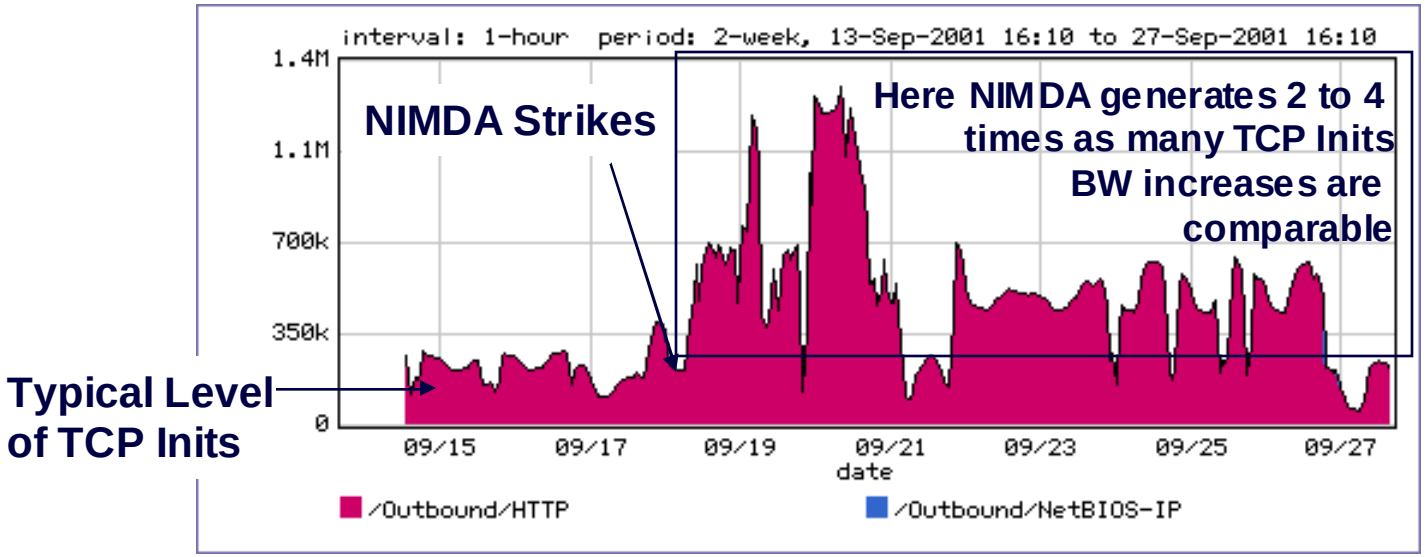
Application Performance Monitoring

- Application Utilization
  - *Average & Peak*
- Application Response Time
  - *Segregate Network and Server Components*
- Round Trip Time
- Worst Clients / Servers

Performance Analysis
Nimda Case Study

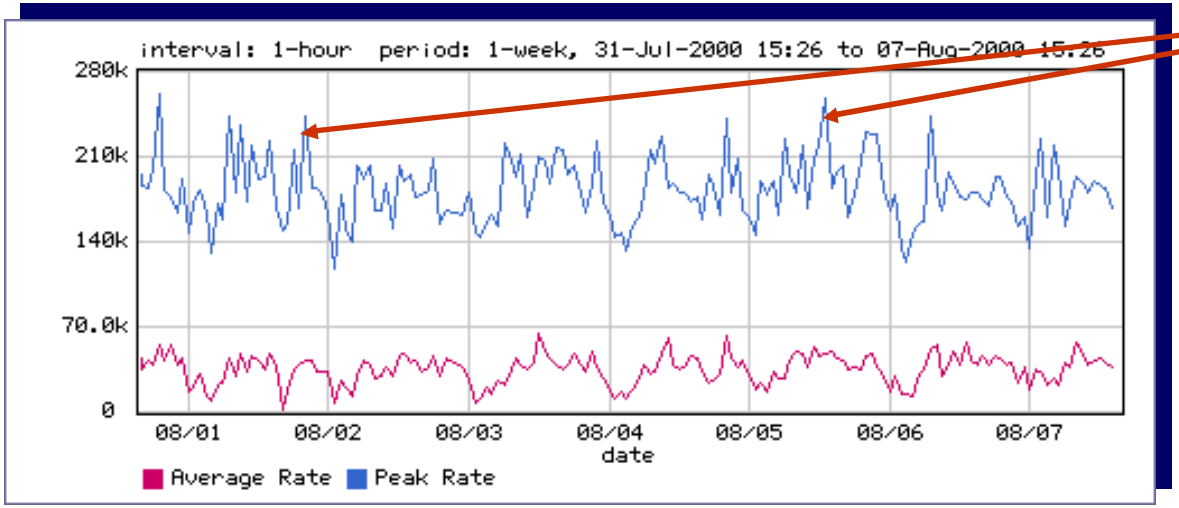
PACKETEER

- Monitor key graphs once a major virus is detected and after you have cleaned your machines.

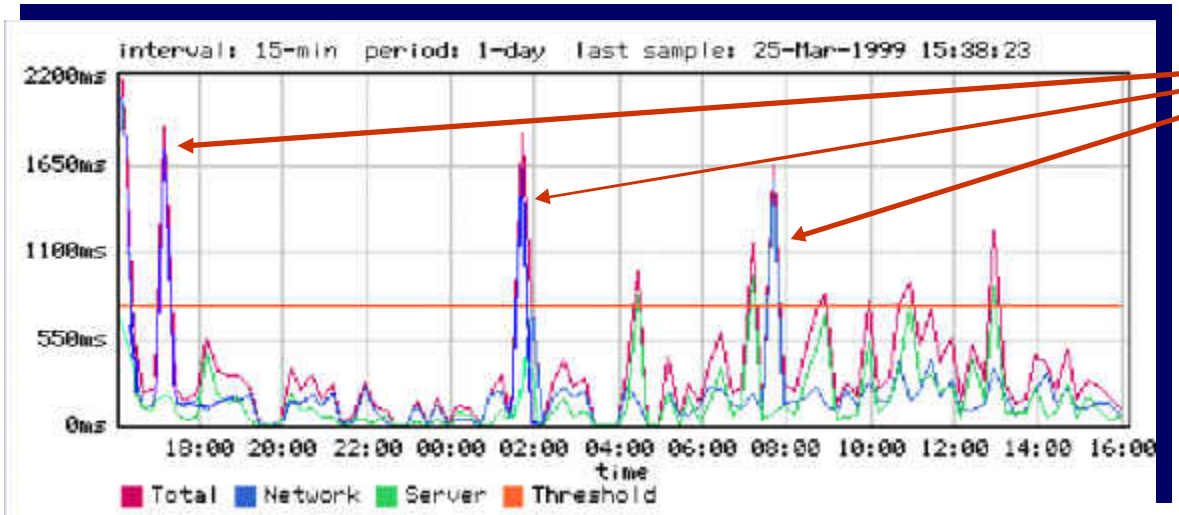


Performance Analysis
Is it the Network or the Application?

PACKETEER



Transient Network Congestion Leads to

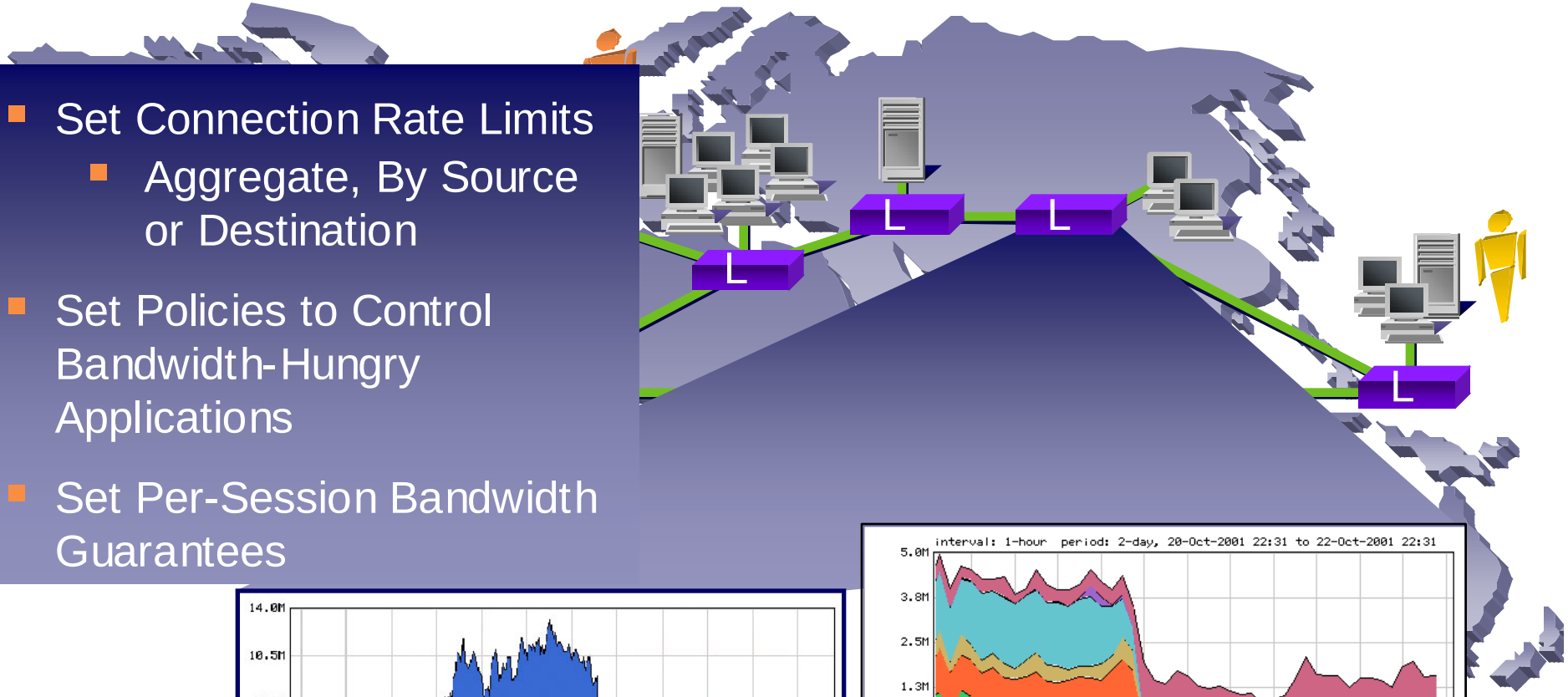


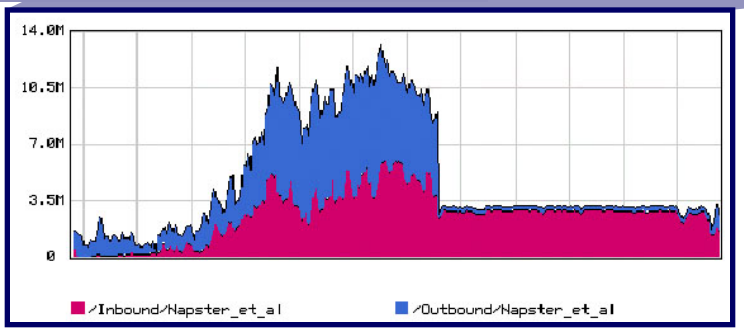
Transient Performance Problems

Bandwidth Management
Solving and Preventing Performance Problems

PACKETEER

- Set Connection Rate Limits
  - Aggregate, By Source or Destination
- Set Policies to Control Bandwidth-Hungry Applications
- Set Per-Session Bandwidth Guarantees

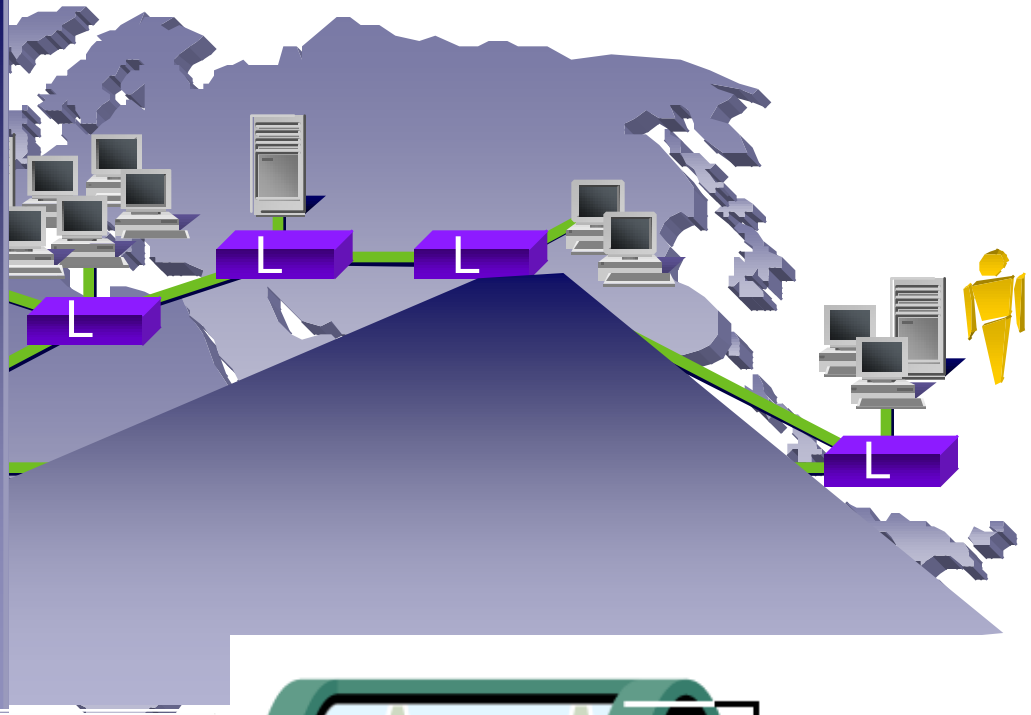


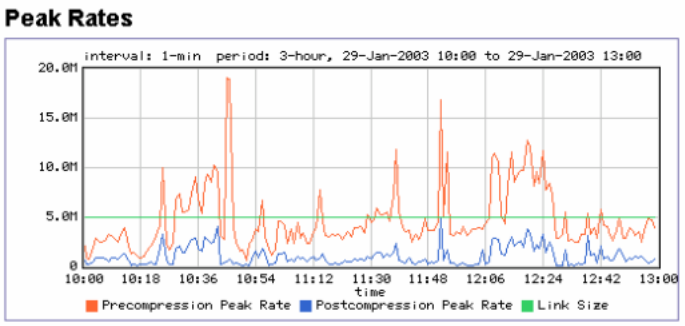


Compression

PACKETEER

- Application-Intelligent Compression
  - Reduces Bytes Sent Over the Network
- Effective Bandwidth Management is a Prerequisite
  - Allocate Virtual Bandwidth First to Important Applications
- Latency Management
  - Minimize latency





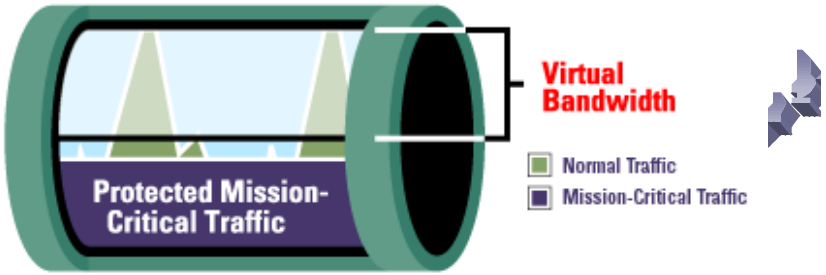


Figure 3: PacketShaper Xpress ensures that mission-critical applications are allocated enough bandwidth.