Source: Arbor Networks

Disclaimers:

- Survey of 111 network operators, not direct measurement
- Arbor sells network security solutions :-)

DoS in the real world
DDoS is frequent and can be big

**Average Number of DDoS Attacks per Month**

- None
- 1-10
- 10-20
- 20-50
- 50-100
- 100-500
- 500+

**Largest Single DDoS Attack Observed per Survey Year in Gbps**

- 0 Gbps
- 10 Gbps
- 20 Gbps
- 30 Gbps
- 40 Gbps
- 50 Gbps
- 60 Gbps
- 70 Gbps
- 80 Gbps
- 90 Gbps
- 100 Gbps

**Figure 15**
Source: Arbor Networks, Inc.

**Figure 1**
Source: Arbor Networks, Inc.
Types of attacks

Largest Observed Attack Vectors

Figure 6: Largest Observed Attack Vectors
Source: Arbor Networks, Inc.

[2009 data]

Layer 7 DDoS Attacks

Source: Arbor Networks, Inc.
**DDoS Mitigation Tools Used**

- **ACLs**
- **IDMS**
- **D/RTBH**
- **S/RTBH**
- **FlowSpec**
- **None**
- **Other**

“destination-based remotely triggered blackholing”

**Figure 21**
Source: Arbor Networks, Inc.
DoS in context

Most Significant Operational Threats

- DDoS Attacks Toward Customers
- Bottled/Compromised Hosts on Network
- Infrastructure Outages Due to DDoS Attacks
- New Vulnerabilities
- Undercapacity for Bandwidth
- Infrastructure Outages Due to Failures
- DDoS Attacks Toward Services
- DDoS Attacks Toward Infrastructure
- Zero-Day Exploits
- Other

Figure 7
Source: Arbor Networks, Inc.