Toward Scalable Solutions for Distributed DoS Attack Prevention

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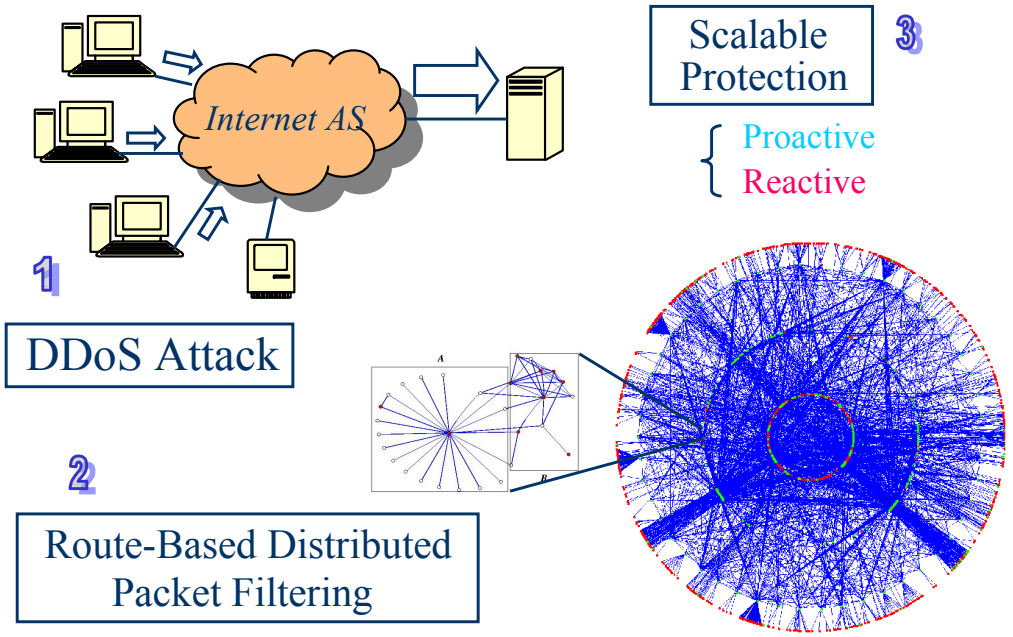


New Ideas

Route-based distributed packet filtering for scalable DDoS defense:

- Proactive discarding of spoofed DDoS packets
- Reactive source traceback of any DDoS attack packet
- Foundation for unspoofed DDoS attack defense

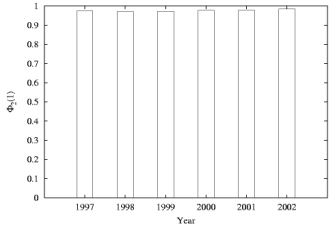
Power-law Internet AS topology affects efficiency:

- Key element of scalable DDoS protection performance
- BGP based inter-domain routing implementation

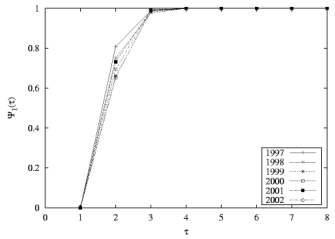
Impact

Provides practical incentive for ISPs to perform route-based filtering for global DDoS protection:

- Strong protection with partial deployment
- New generation security technology grounded in theory
- Realistic measurement-based performance evaluation



Proactive



Reactive

Schedule

Year 1:

- Significant improvement in filter placement efficiency
- Release of *Static DPF Simulator* for large-scale networks
- Prototype *Dynamic DPF Simulator* built on serial DaSSF
- BGP-based protocol specification

Year 2:

- *Dynamic DPF Simulator* to be built on parallel DaSSF
- Control plane vulnerability
- Extension to scalable unspoofed DDoS attack protection