



# **CISCO NETWORK FOUNDATION PROTECTION**

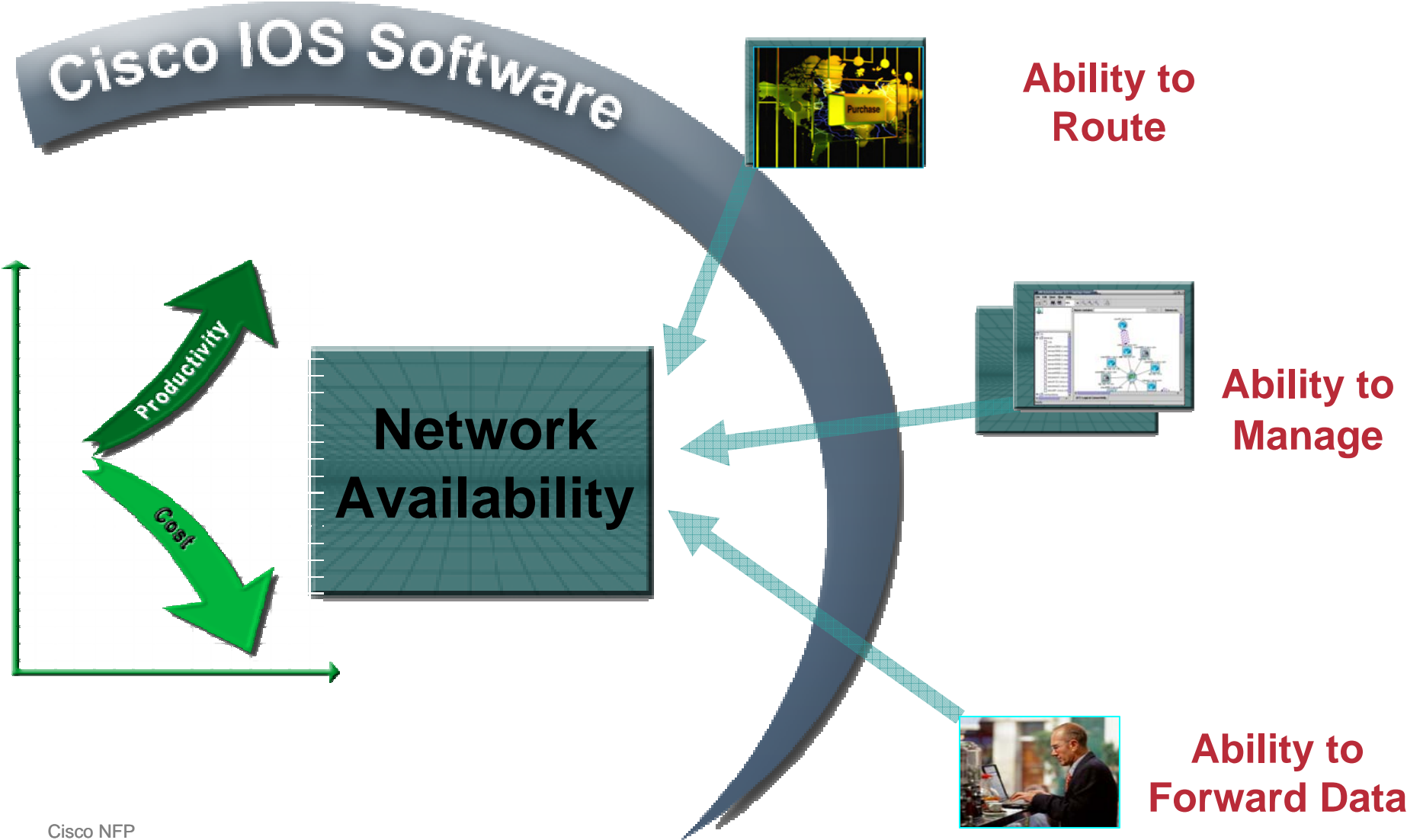
**SECURITY TECHNOLOGY GROUP**

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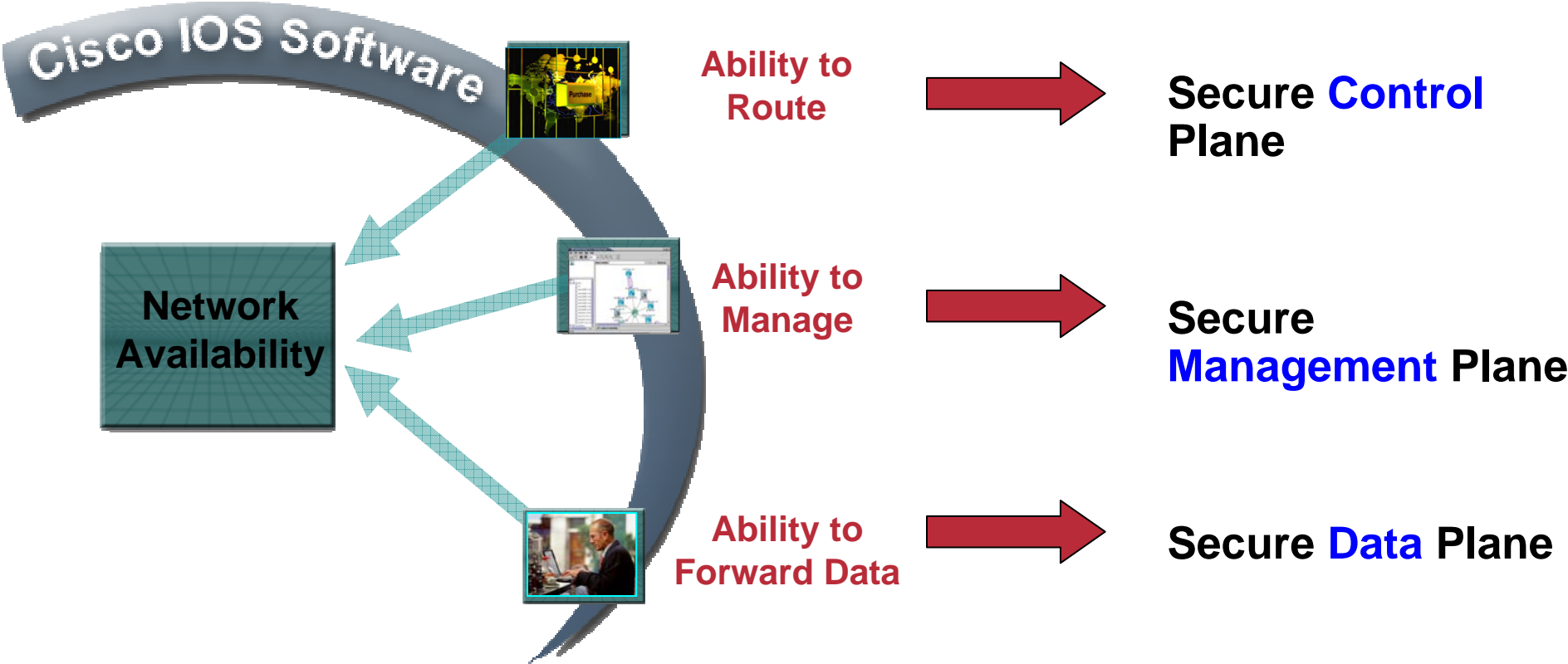
# Customers Must Take Control of Their Networks

- In Today's Marketplace:
  - Business = Network**
- Internet has experienced paradigm shift from **implicit trust** to an Internet of **pervasive distrust**
  - No packet can be trusted
  - All packets must earn trust through a network device's ability to inspect and enforce **policy**
  - It is not enough to forward packets – they need to be **classified** properly and forwarded after applying the policy
- New unprecedented control of the network is required
  - Technology Opportunity – enable customers to take control of their business
- Driven by Business Deliverables:
  - Network Availability 99.999**

# Secure Network = Available Network



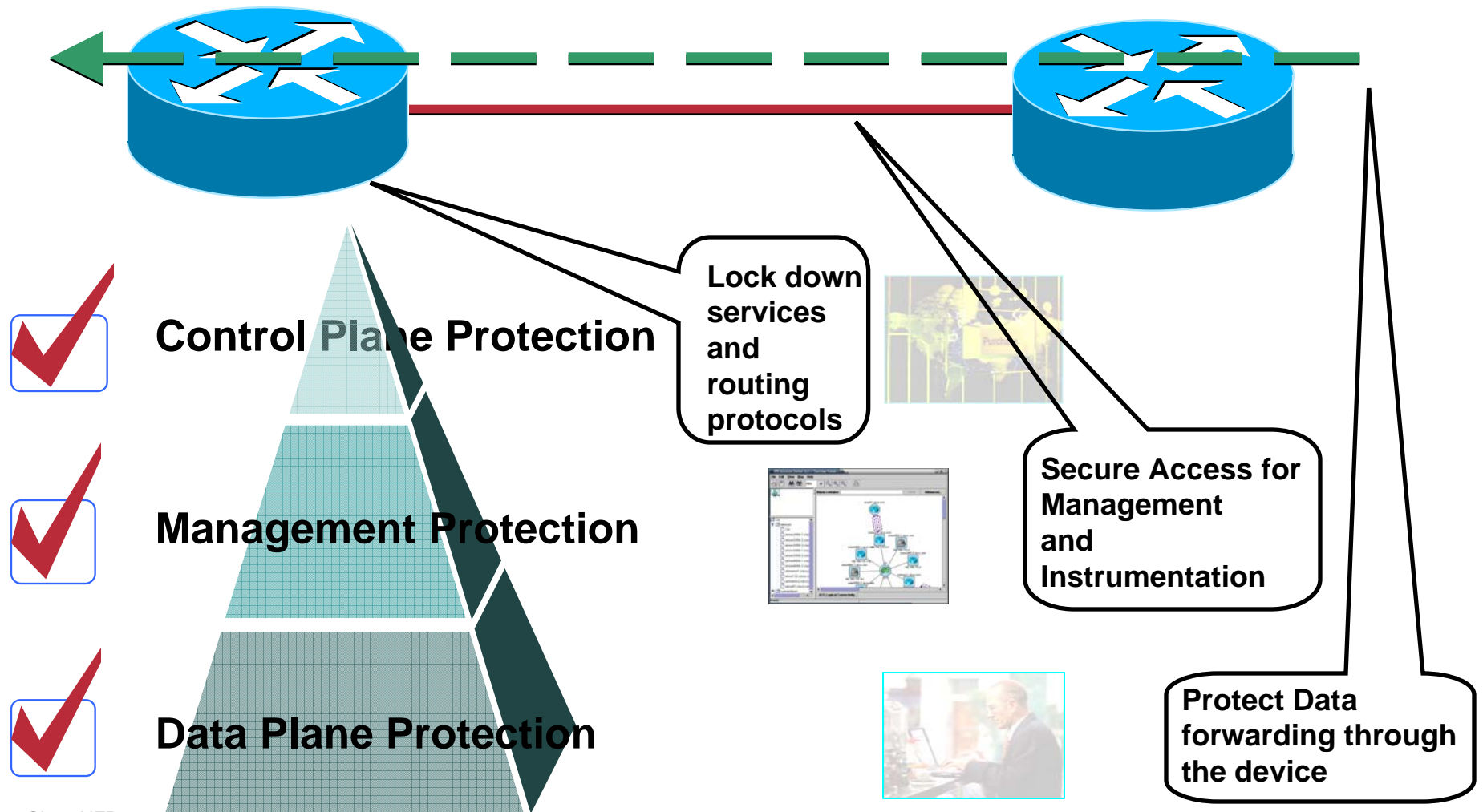
# Securing the Router – Plane by Plane



**Think “Divide and Conquer”: Methodical Approach to Protect Three Planes**

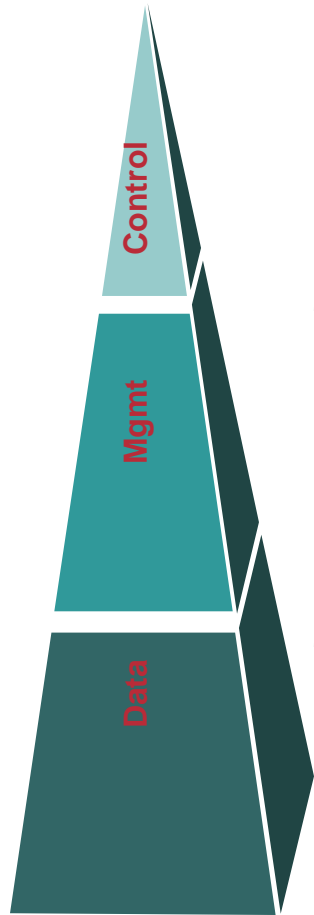
# Cisco Network Foundation Protection

Secure Networks Must Be Built on a Secure Foundation



# Cisco NFP – Three Planes Definitions

**Cisco Network Foundation Protection (NFP) is a Cisco IOS® Technology suite that protects network devices, routing and forwarding of control information, and management of traffic bounded to the network devices**



**Control Plane Protection – protects the control plane traffic responsible for traffic forwarding**

- Autosecure with rollback functionality
- Control Plane Protection
- CPU / Memory Threshold

**Management Plane Protection – protects the management plane from unauthorized management access and polling**

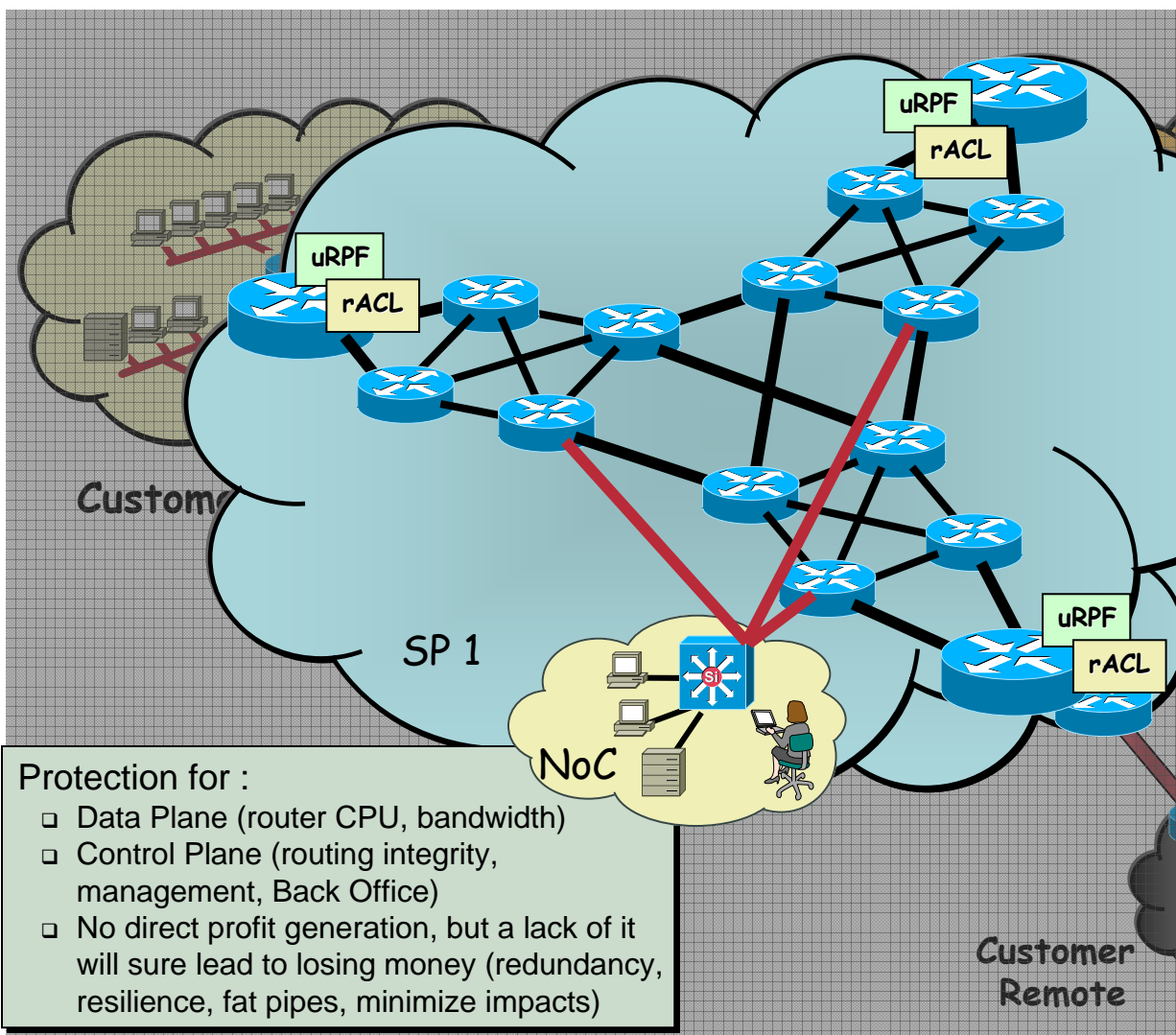
- Secure Shell (SSH) only access
- VTY Access Control List (ACL)
- Cisco IOS Software login enhancement
- Command Line Interface (CLI) views

**Data Plane Protection – protects the data plane from malicious traffic**

- Unicast RPF for anti-spoofing
- Control Plane Protection for Data traffic
- Committed Access Rate (CAR)

# Cisco NFP in Signaling Point Core Network Security – Signaling Point Core Perspective

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- Deploy Security Features—**
- Data Plane Configurations
    - Unicast RPF
    - rACLs, CoPP, CAR, etc.
    - Other (e.g. ICMP rate limits)
  - Control Plane Configurations
    - rACLs, CoPP
    - Routing Plane protection (BGP peer authentication, route filtering via prefix filters, route maps, SPD)
    - Management Plane protection (SNMP v3, TACACS+, VTY ACLs, NTP authentication)
  - Management Plane Protection Configurations
    - SNMP v3, TACACS+, VTY ACLs, NTP authentication
    - Netflow for traffic and DDoS analysis

- Protection for :**
- Data Plane (router CPU, bandwidth)
  - Control Plane (routing integrity, management, Back Office)
  - No direct profit generation, but a lack of it will sure lead to losing money (redundancy, resilience, fat pipes, minimize impacts)

- Maturity —**
- Moving from “art” to “engineering” today
  - Few products (startups) – highly niche oriented space
  - SP Security Best Practices and Cisco SAFE Signaling Point Architecture

# Cisco Self-Defending Network Technologies – NFP

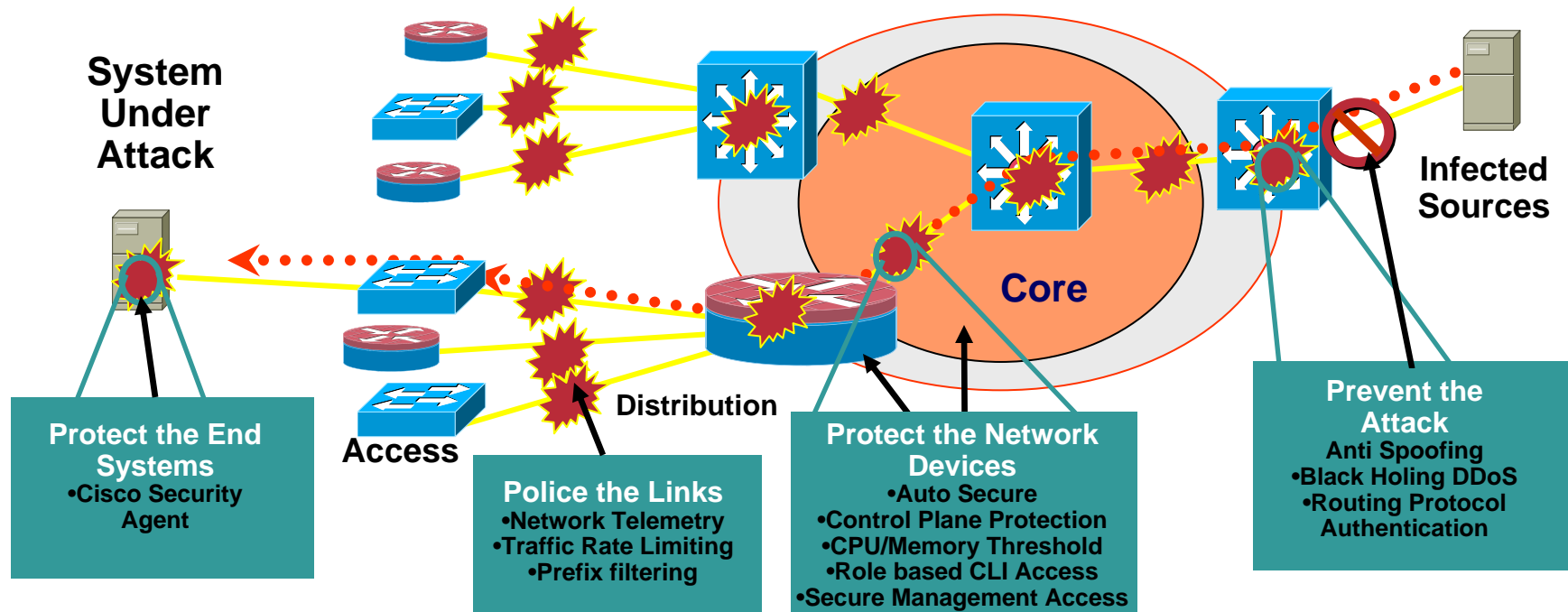
Feature	Benefits
<b>Control Plane Protection</b>	
Control Plane Protection	Reduces the success of a DDoS attack by policing the incoming rate of traffic to the control plane
Autosecure	Quickly locks down devices based on industry recognized best practices (NSA guidelines)
Routing protocol protection	Validates routing peers and source/destination of routing updates, filtering of prefixes
CPU/Memory Thresholding	Router remains operational under high loads caused by attacks through reserving CPU/memory
<b>Management Plane Protection</b>	
Secure Access	SNMPv3, TACACS+, VTY ACLs, SSH
Image Verification	Verifies the Cisco IOS Software images that the router boots from
Role Based CLI Views	Allows for granular control of CLI with AAA user credential checking
Network Telemetry	Cisco IOS NetFlow for traffic and DDoS analysis



# Cisco Self-Defending Network Technologies – NFP (Cont.)

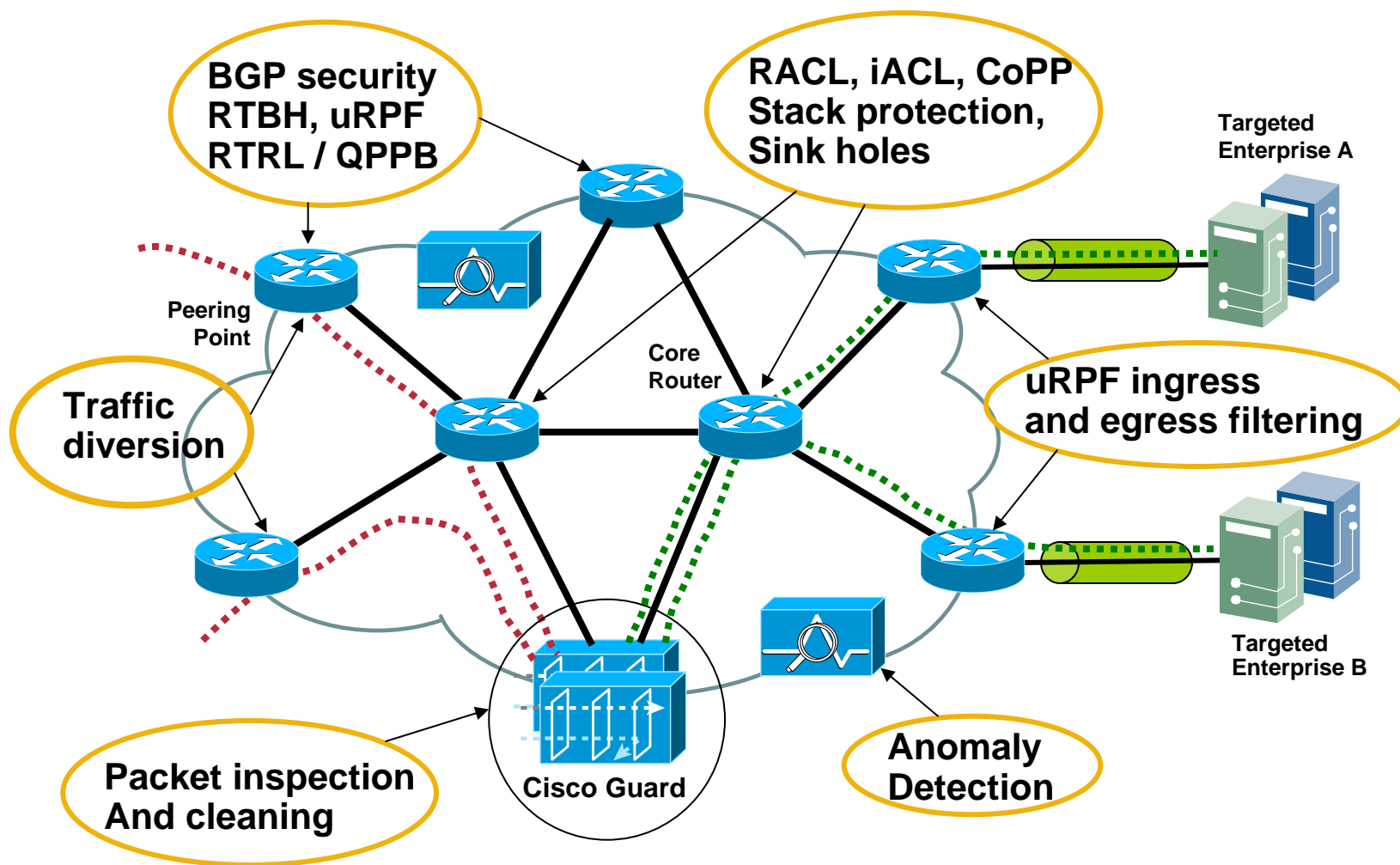
<b>Feature</b>	<b>Benefits</b>
<b>Data Plane Protection</b>	
<b>Unicast RPF</b>	<b>Antispoofing for source IP address</b>
<b>Access Control Lists</b>	<b>ACLs - filter traffic through a device</b>
<b>Infrastructure ACL and CAR</b>	<b>Remove possibility for illegitimate users to send any traffic to link addresses</b>

# Cisco Network Foundation Worm Protection in Action



Protect and Police your business with a secure and available network

# Combining Everything



# Glossary

Acronym	Description
CoPP	Control Plane Policing
RTBH	Remote Triggered Black Hole
RTRL	Remote Triggered Rate Limiting
rACL	Receive ACL
iACL	Infrastructure ACL
uRPF	Unicast Reverse Path Forwarding

# CISCO SYSTEMS

