SOLUÇÃO MAESTRO

SEGURANÇA EM HIPERESCALABILIDADE

Ricardo Bacelar | Security Engineer

José Irapuan | Security Engineer

SEGURANÇA COMPLETA

CloudGuard — SECURE THE CLOUD

- **CloudGuard Posture Management** — Posture Management & Visibility
- **CloudGuard Intelligence** — Network Traffic Analysis
- **CloudGuard Workload** — Runtime Workload Protection
- **CloudGuard Network** — Cloud Access Control & Prevention
- **CloudGuard AppSec** — Web & API Protection

Multi & Hybrid Cloud

SD-WAN

Quantum — SECURE THE NETWORK

- **Quantum Security Gateway** — Enterprise Firewall
- **Quantum Maestro** — Hyperscale
- **Quantum Lightspeed** — Hyper-Fast Firewall
- **Quantum R81** — Secure-OS
- **Quantum SMB** — SMB-Suite
- **Quantum Rugged** — ICS Security
- **Quantum IoT Protect** — IoT Security
- **Quantum Smart-1 Cloud** — Security Management

• Access Control	• Wide Range of Firewalls	• Unified Policy
• Advanced Threat Prevention	• Up to 3 Tbps Throughput	• Autonomous Security
• Data Protection	• 1, 10, 25, 40, 100 GbE ports	• Event Management
	• Wi-Fi, DSL, 3G/4G/LTE	• Compliance

Horizon — UNIFIED MANAGEMENT & SECURITY OPERATIONS

- **Horizon MDR** — Managed Prevention & Response
- **Horizon XDR** — Extended Prevention & Response
- **Horizon Events** — Unified Events
- **INFINITY PORTAL** — Management & Unified Visibility
- **THREATCLOUD** — Threat Intelligence

Harmony — SECURE USERS & ACCESS

SECURE ACCESS SERVICE EDGE (SASE)

Harmony Connect (SASE)

- Zero Trust Network Access (ZTNA)
- Secure Web Gateway (SWG)
- Cloud Access Security Broker (CASB)
- Branch FWaaS

EMAIL & COLLABORATION

Harmony Email & Collaboration

- Account Takeover Protection
- Data Loss Prevention
- Threat Prevention
- Zero Phishing

ENDPOINT & MOBILE

Harmony Endpoint	Harmony Browse	Harmony Mobile
• Threat Prevention	• Zero Day Browser Protection	• App Protection
• Anti-Ransomware	• Threat Prevention	• Network Protection
• Forensics	• Zero Phishing	• Device Protection
• Secure Media		
• Access Control		

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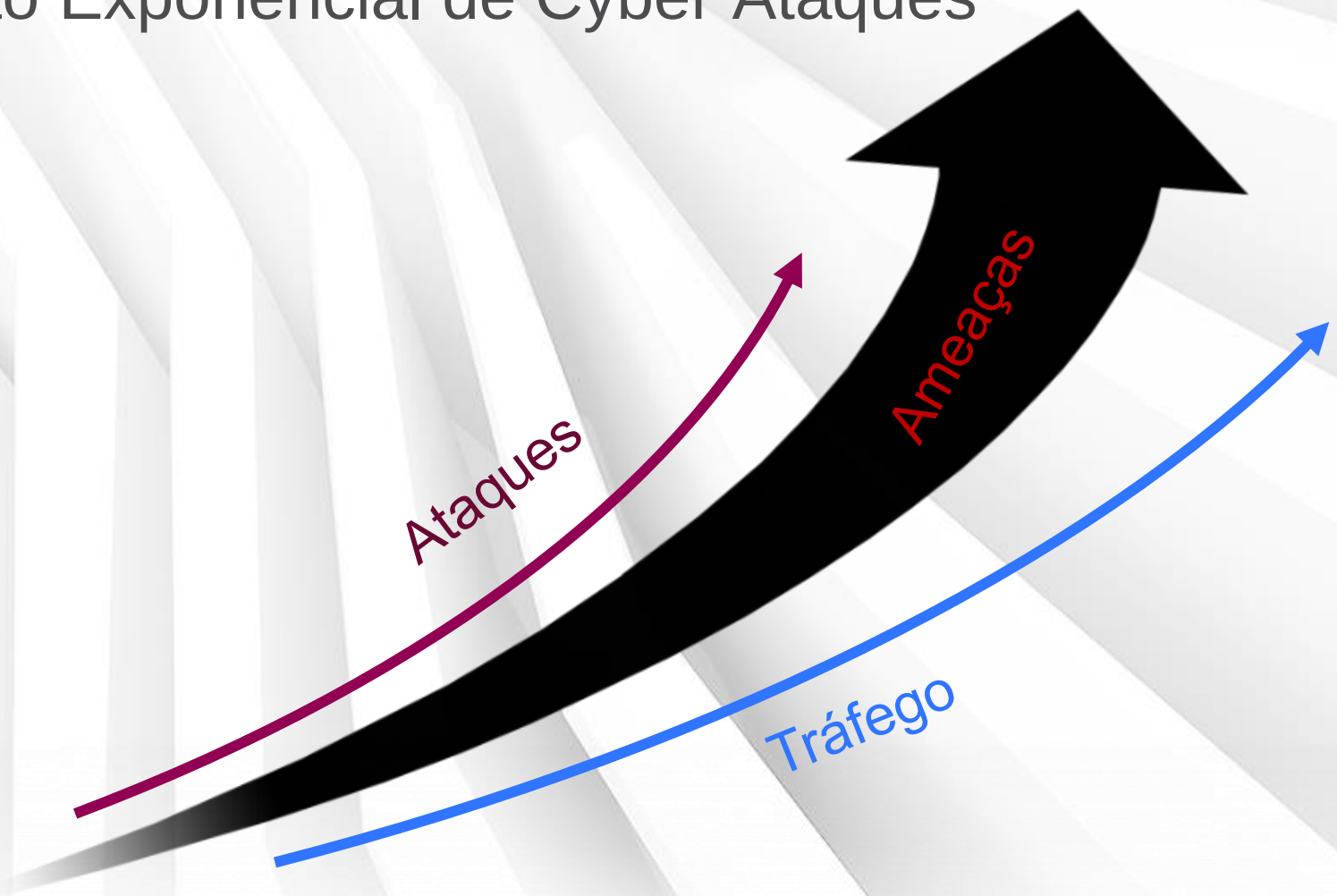
Atualmente…
Tráfego Dobra
A cada 3 anos
Nossa rede cresce até
25%
Ano após ano

Onde nós Estamos?

Crescimento Exponencial de Cyber Ataques



E AS PLATAFORMAS DE SEGURANÇA???

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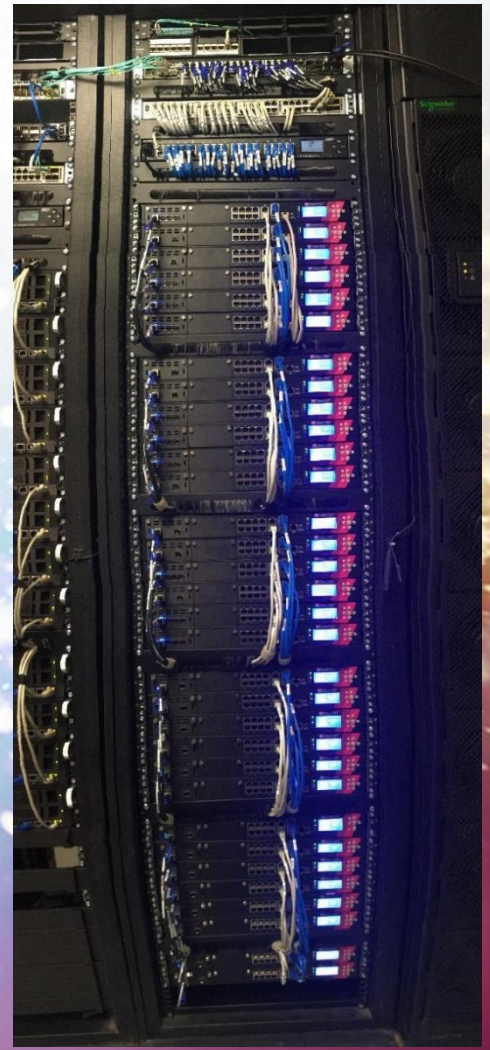
Plataformas Escaláveis Check Point

64000

44000

Novas Opções

Quantum Maestro



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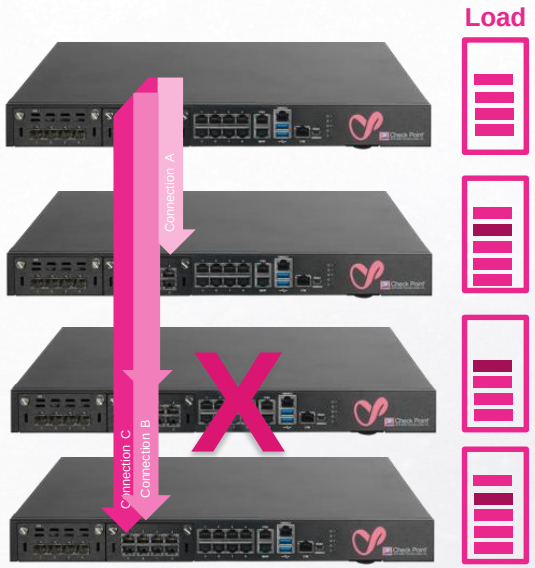
Cluster HiperEscalável - *"Chassisless"*

Conceito reinventado para Plataforma Escalável

Appliances **já conhecidos**

Agora é a hora de **Cloudificar** nossas **Redes e Datacenters**

Escalabilidade



Redundância

Load Balancing de tráfego

Resiliência

Sincronização de Software e Configuração

Eficiência de custo

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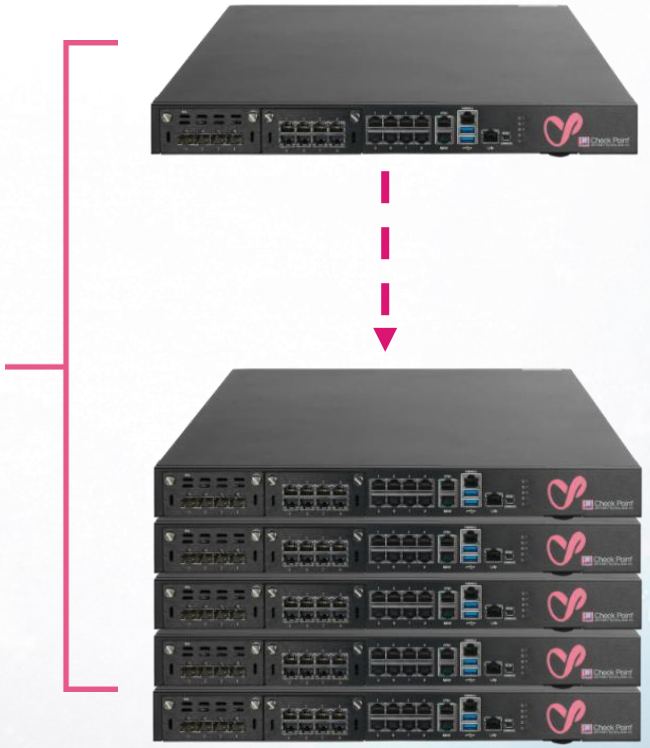
Arquitetura Física - Entendendo em detalhes

Performance e Simplicidade

M A E S T R O
Orquestradores
HiperEscalabilidade



Q u a n t u m
Appliances

1.5 Tbps

Zero Touch Provisioning

Up to 52 appliances

Threat Prevention

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Arquitetura Física **MAESTRO**

- **Camada de Orquestração**

- **Camada de Recursos Computacionais**

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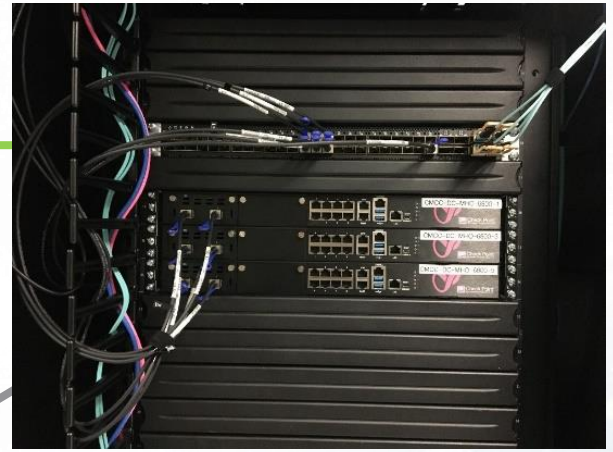
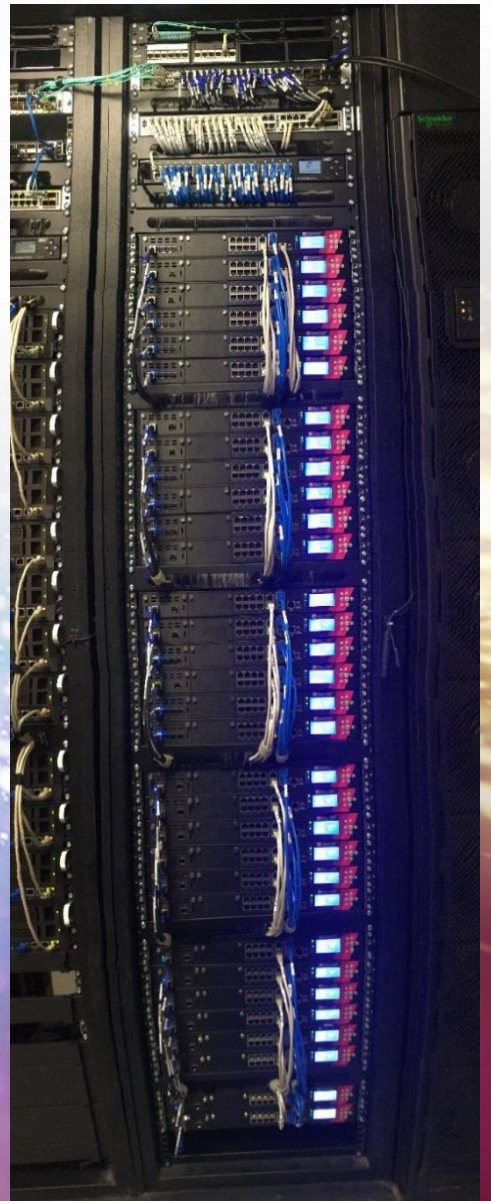
Arquitetura Física **MAESTRO**

- **Camada de Orquestração**



- **Camada de Recursos Computacionais**



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Tecnologias **Smart** - Quantum Maestro

Mix and Match HW

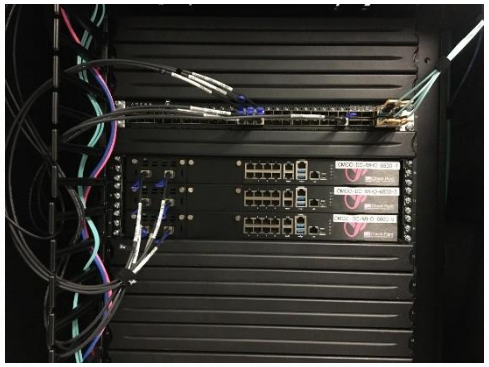

Image Auto-Cloning

```
admin@Gateway-Reference-ch02-01:~
[Global] Gateway-Reference-ch02-01 > set smo image auto-clone state on
1_01:
Image auto-clone state is on

1_02:
Image auto-clone state is on

1_03:
Image auto-clone state is on

2_01:
Image auto-clone state is on

2_02:
Image auto-clone state is on

2_03:
Image auto-clone state is on

[Global] Gateway-Reference-ch02-01 >
```

Global configuration

```
ggaudi_t13-ch01-01 > set interface eth1-12 ipv4-address 33.33.33.1 mask-length 24
1_01:
success

1_02:
success

1_03:
success

ggaudi_t13-ch01-01 >
```

Auto-discovery

```
[Expert@wal-orch1:0]# tldpctl
LLDP neighbors:
Interface:    dl30, via: LLDP, RID: 1, Time: 34 days, 17:30:26
  Chassis:
    ChassisID:    local SG2-ch01-02
    SysName:      SG2-ch01-02
    SysDescr:     #sid*1910BA1411#/sid*#name*Check Point 6500#/name*
    MgmtIP:       198.51.102.2
    Capability:   Bridge, off
    Capability:   Router, on
    Capability:   Wlan, off
  Port:
    PortID:       mac 00:1c:7f:02:00:fe
    PortDescr:    ethsBP1-01
     Port is aggregated. PortAggregID: 17
Interface:    dl33, via: LLDP, RID: 6, Time: 34 days, 17:30:24
  Chassis:
    ChassisID:    local SG2-ch01-01
    SysName:      SG2-ch01-01
    SysDescr:     #sid*1910BA1395#/sid*#name*Check Point 6500#/name*
    MgmtIP:       198.51.102.1
    Capability:   Bridge, off
    Capability:   Router, on
    Capability:   Wlan, off
  Port:
    PortID:       mac 00:1c:7f:01:00:fe
    PortDescr:    ethsBP1-01
     Port is aggregated. PortAggregID: 17
Interface:    dl43, via: LLDP, RID: 1, Time: 34 days, 17:30:24
  Chassis:
    ChassisID:    local SG2-ch01-02
    SysName:      SG2-ch01-02
    SysDescr:     #sid*1910BA1411#/sid*#name*Check Point 6500#/name*
    MgmtIP:       198.51.102.2
    Capability:   Bridge, off
    Capability:   Router, on
    Capability:   Wlan, off
  Port:
    PortID:       mac 00:1c:7f:02:00:fe
    PortDescr:    ethsBP1-03
     Port is aggregated. PortAggregID: 17
```

Auto-diagnostics

```
[Expert@SG1-ch01-01:0]# asg diag list
-------------------------------------------------------
| ID | Title                | Command
-------------------------------------------------------
| System Components
-------------------------------------------------------
|  1 | System Health        | asg stat -v
|  2 | Resources            | asg resource
|  3 | Software Provision   | asg_provision
|  4 | Media Details        | transceiver_verifier -v
|  5 | SSD Health           | asg resource --ssd
|  6 | Firmware Verifier    | firmware_verifier -v
-------------------------------------------------------
| Policy and Configuration
-------------------------------------------------------
|  7 | Distribution Mode    | distutil verify -v
|  8 | DXL Balance          | dxl stat
```


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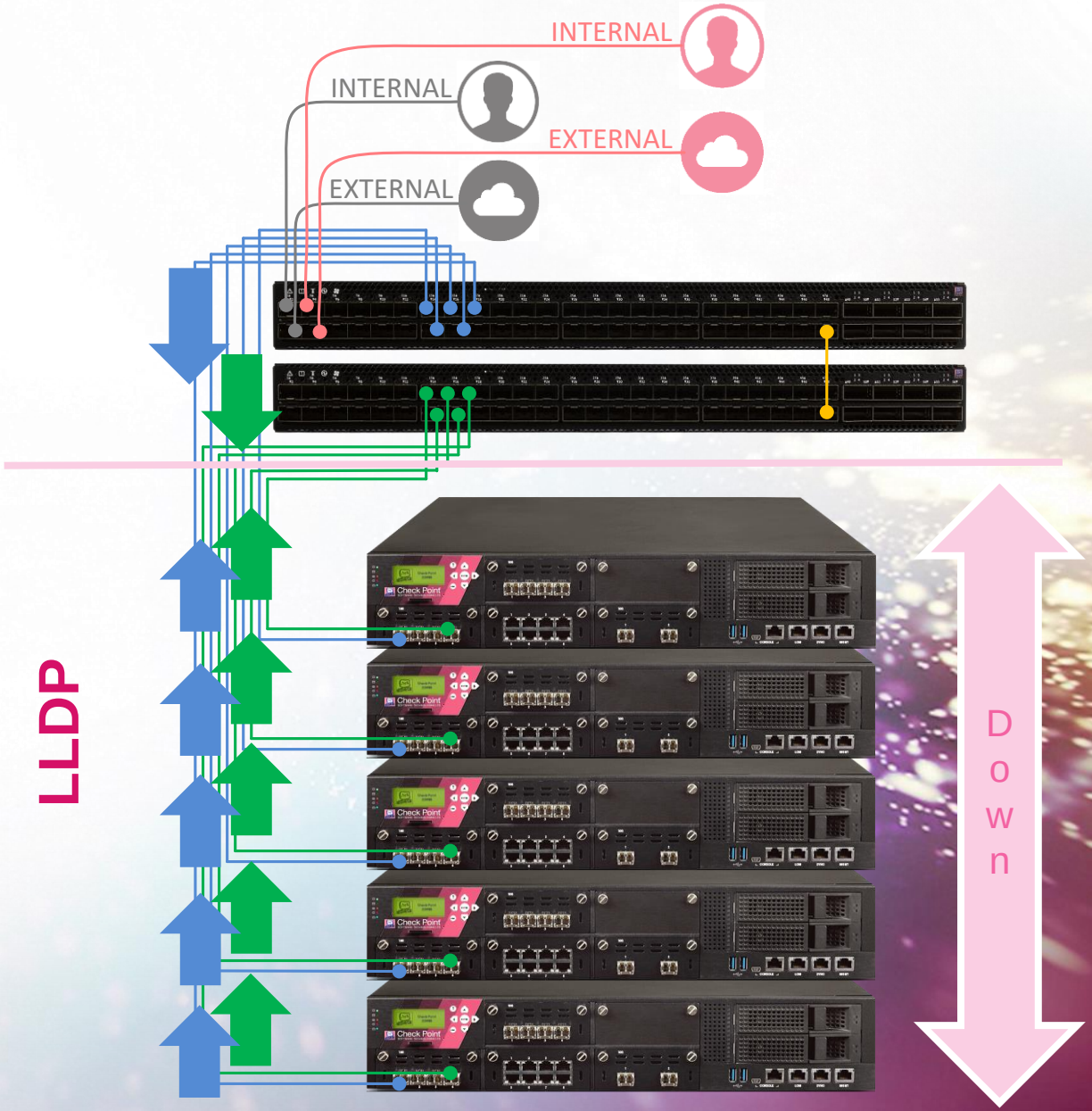
Auto-Discovery

- *Appliances* se comunicam com o Orquestrador utilizando **Link Layer Discover Protocol (LLDP)**
- *Appliances* recebem a configuração do Orquestrador e SMO
- Tráfego passa pelo SGM logo após a configuração é aplicada



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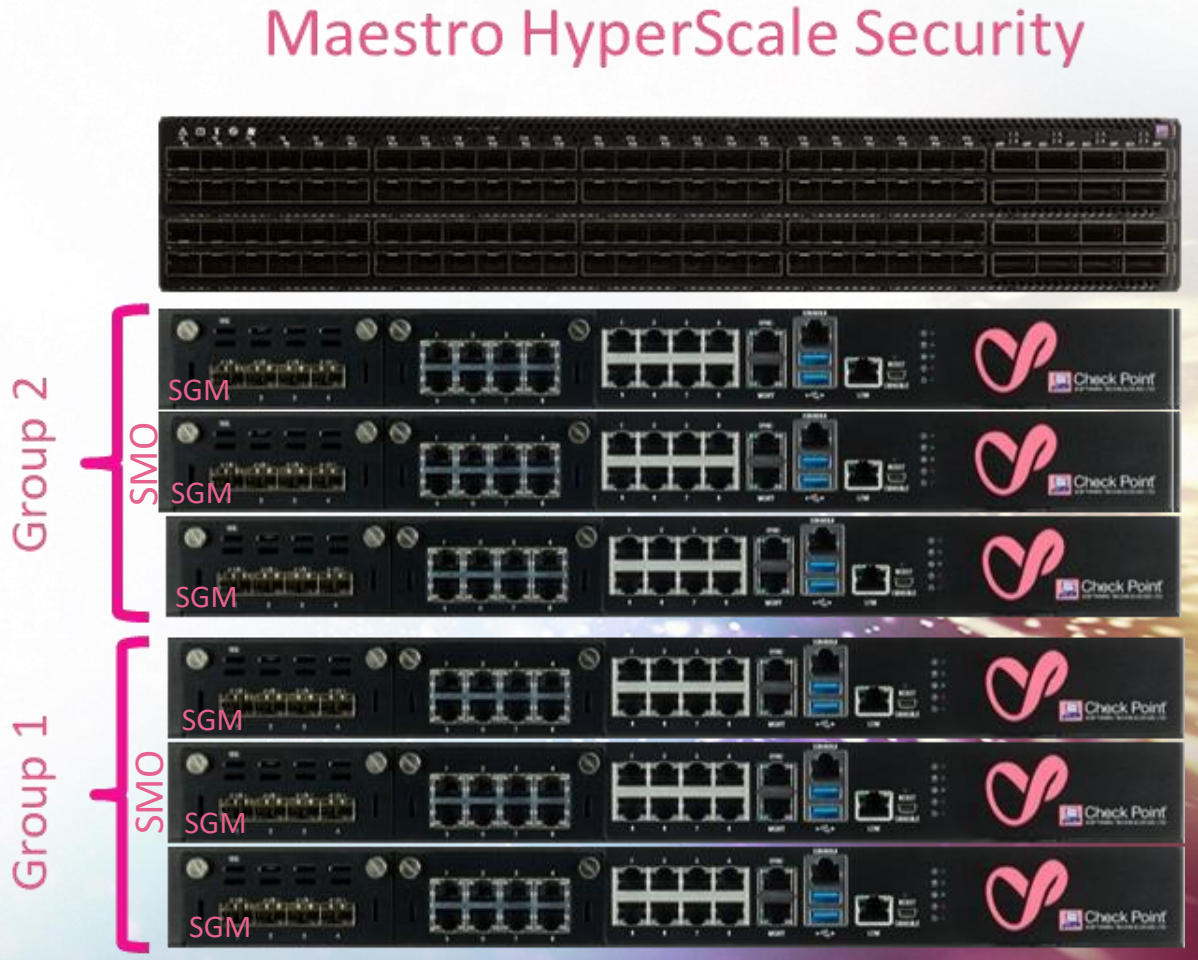
Grupos de Segurança - Security Groups (SG)

- Configurado através do Orquestrador
- Cada *Security Group* contém Appliances, portas de gerência e uplinks
- Até 8 Security Groups
- Até 28 appliances por SG
- Até 14 appliances por site
- Até 52 appliances por sistema



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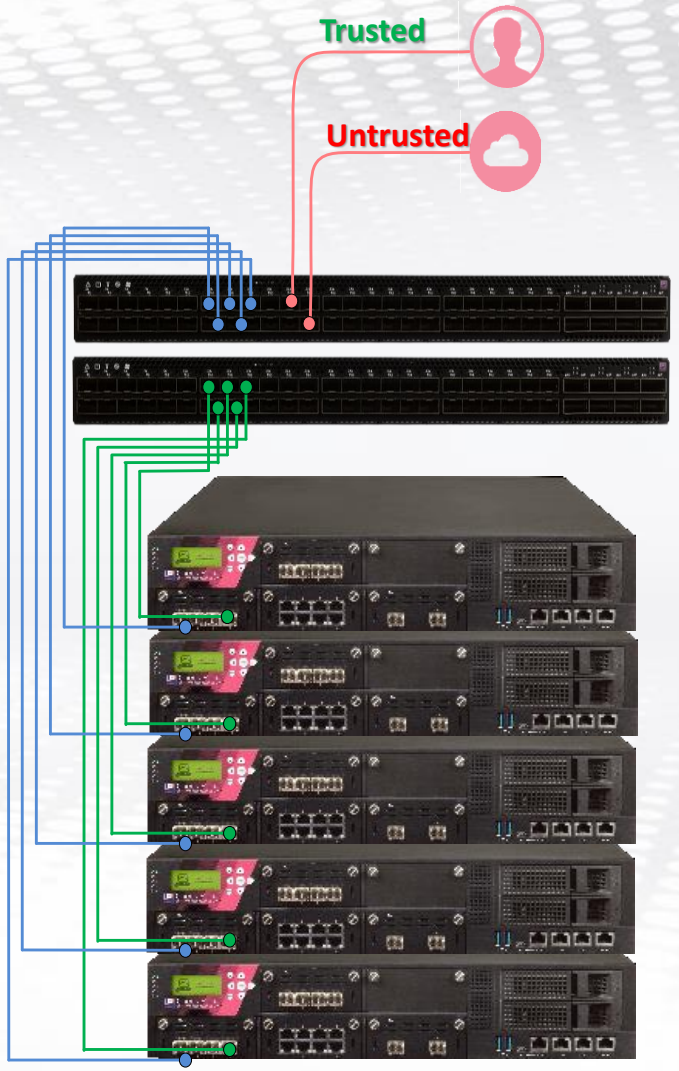
Redução de Complexidade

UPLINKS

Conexões para zonas Confiáveis e Não Confiáveis. Interfaces são **visíveis aos admins** no SmartDashboard, WebUI, CLISH, etc.

DOWNLINKS

Camada de **Abstração** que forma o Sistema de Backplane **(Configuração não é requerida)**



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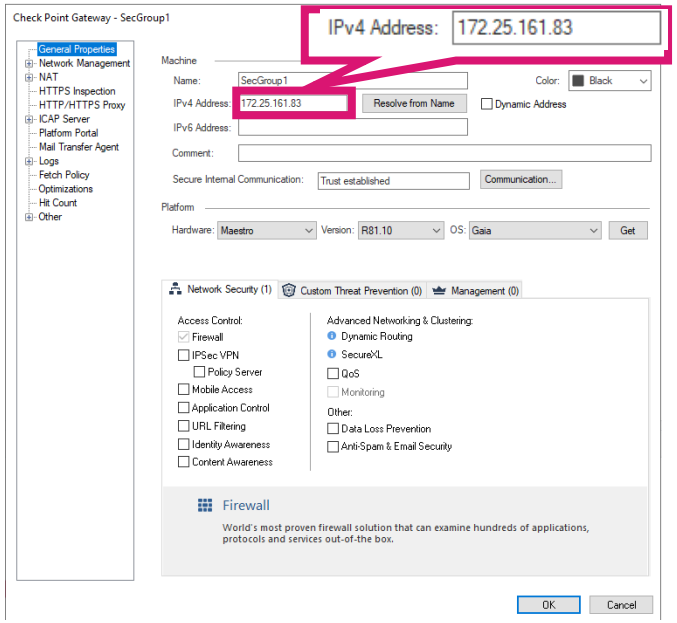
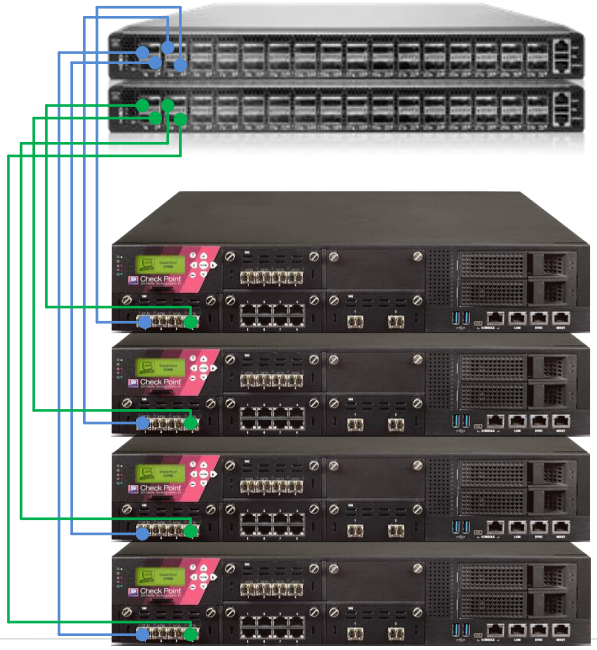
Single Management Object (SMO)

- **Único Objeto** para Security GW por Security Group na SmartConsole
- **Único** endereço IP para gerência
- **Clona** toda configuração entre os membros
- **Rápida** instalação de Política
- **Hierarquico** - Sistema
- **Cluster** - Abstração





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Monitorando Maestro

SNMP

sk168878

Security Group

asg monitor

asg stat -v

g_all cphaprob stat

asg perf -v -p --delay 1

asg perf -v -k

cpview

```
-------------------------------------------------------------------------------
| System Status - Maestro                                                     |
-------------------------------------------------------------------------------
| Chassis Mode                | Primary Up (1 2)                              |
| Up time                     | 80 days, 11:47:39 hours                       |
| SGMs                        | 2 / 2                                         |
| Version                     | R81 (Build Number 396)                        |
| FW Policy Date              | Standard                                      |
| AMW Policy Date             | N/A                                           |
-------------------------------------------------------------------------------
| SGM ID            Chassis 1                       Chassis 2                 |
|                   ACTIVE                          STANDBY                   |
-------------------------------------------------------------------------------
|  1                  ACTIVE                          ACTIVE                  |
-------------------------------------------------------------------------------
| Chassis HA mode:            Primary Up                                      |
-------------------------------------------------------------------------------
```

Orchestrator

orch_stat –a

Physical Port	Interface Name	Type	SG	QSFP Mode	Admin State	Link State	Transceiver
1/1/1	eth1-Mgmt1	Mgmt	1	10G	UP	DOWN	UNPLUGGED
1/2/1	eth1-Mgmt2	Mgmt	---	10G	DOWN	DOWN	UNPLUGGED
1/3/1	eth1-Mgmt3	Mgmt	---	10G	DOWN	DOWN	UNPLUGGED
1/4/1	eth1-Mgmt4	Mgmt	---	10G	DOWN	DOWN	UNPLUGGED
1/5/1	eth1-05	Uplink	1	10G	UP	UP	PLUGGED
1/6/1	eth1-06	Uplink	---	10G	DOWN	DOWN	UNPLUGGED
1/7/1	eth1-07	Uplink	---	10G	DOWN	DOWN	UNPLUGGED
1/8/1	eth1-08	Uplink	---	10G	DOWN	DOWN	UNPLUGGED
1/9/1	eth1-09	Uplink	---	10G	DOWN	DOWN	UNPLUGGED
1/10/1	eth1-10	Uplink	---	10G	DOWN	DOWN	UNPLUGGED
1/11/1	eth1-11	Uplink	---	10G	DOWN	DOWN	UNPLUGGED
1/12/1	eth1-12	Uplink	---	10G	DOWN	DOWN	UNPLUGGED
1/13/1	eth1-13	Uplink	---	10G	DOWN	DOWN	UNPLUGGED
1/14/1	eth1-14	Uplink	---	10G	DOWN	DOWN	UNPLUGGED
1/15/1	eth1-15	Uplink	---	10G	DOWN	DOWN	UNPLUGGED
1/16/1	eth1-16	Uplink	---	10G	DOWN	DOWN	UNPLUGGED
1/17/1	eth1-17	Uplink	---	10G	DOWN	DOWN	UNPLUGGED
1/18/1	eth1-18	Uplink	---	10G	DOWN	DOWN	UNPLUGGED
1/19/1	eth1-19	Uplink	---	10G	DOWN	DOWN	UNPLUGGED
1/20/1	eth1-20	Uplink	---	10G	DOWN	DOWN	UNPLUGGED
1/21/1	eth1-21	Uplink	---	10G	DOWN	DOWN	UNPLUGGED
1/22/1	eth1-22	Uplink	---	10G	DOWN	DOWN	UNPLUGGED
1/23/1	eth1-23	Uplink	---	10G	DOWN	DOWN	UNPLUGGED
1/24/1	eth1-24	Uplink	---	10G	DOWN	DOWN	UNPLUGGED
1/25/1	eth1-25	Uplink	---	10G	DOWN	DOWN	UNPLUGGED
1/26/1	eth1-26	Uplink	1	10G	UP	UP	PLUGGED
1/27/1	---	Downlink	---	10G	UP	DOWN	UNPLUGGED
1/28/1	---	Downlink	---	10G	UP	DOWN	UNPLUGGED
1/29/1	---	Downlink	---	10G	UP	DOWN	UNPLUGGED
1/30/1	---	Downlink	---	10G	UP	DOWN	UNPLUGGED
1/31/1	---	Downlink	---	10G	UP	DOWN	UNPLUGGED
1/32/1	---	Downlink	---	10G	UP	DOWN	UNPLUGGED
1/33/1	---	Downlink	---	10G	UP	DOWN	UNPLUGGED
1/34/1	---	Downlink	---	10G	UP	DOWN	UNPLUGGED
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1/37/1	---	Downlink	---	10G	UP	DOWN	UNPLUGGED
1/38/1	---	Downlink	---	10G	UP	DOWN	UNPLUGGED
1/39/1	---	Downlink	---	10G	UP	DOWN	UNPLUGGED
1/40/1	---	Downlink	---	10G	UP	DOWN	UNPLUGGED
1/41/1	---	Downlink	---	10G	UP	DOWN	UNPLUGGED
1/42/1	---	Downlink	---	10G	UP	DOWN	UNPLUGGED
1/43/1	---	Downlink	---	10G	UP	DOWN	UNPLUGGED
1/44/1	---	Downlink	---	10G	UP	DOWN	UNPLUGGED
1/45/1	---	Downlink	---	10G	UP	DOWN	UNPLUGGED
1/46/1	---	Downlink	---	10G	UP	DOWN	UNPLUGGED
1/47/1	SYNC-EXT	Site Sync	---	10G	UP	UP	PLUGGED
1/48/1	SYNC-INT	SSM Sync	---	10G	UP	UP	PLUGGED
1/49/1	eth1-49	Uplink	1	100G	UP	UP	PLUGGED
1/50/1	eth1-51	Uplink	1	100G	UP	DOWN	UNPLUGGED
1/51/1	eth1-53	Uplink	---	100G	DOWN	DOWN	UNPLUGGED
1/52/1	eth1-55	Uplink	---	100G	DOWN	DOWN	UNPLUGGED
1/53/1	eth1-57	Uplink	---	100G	DOWN	DOWN	UNPLUGGED
1/54/1	eth1-59	Uplink	---	100G	DOWN	DOWN	UNPLUGGED
1/55/1	ethsBP1-01	Downlink	---	100G	UP	UP	PLUGGED
1/56/1	---	Downlink	---	100G	UP	DOWN	UNPLUGGED

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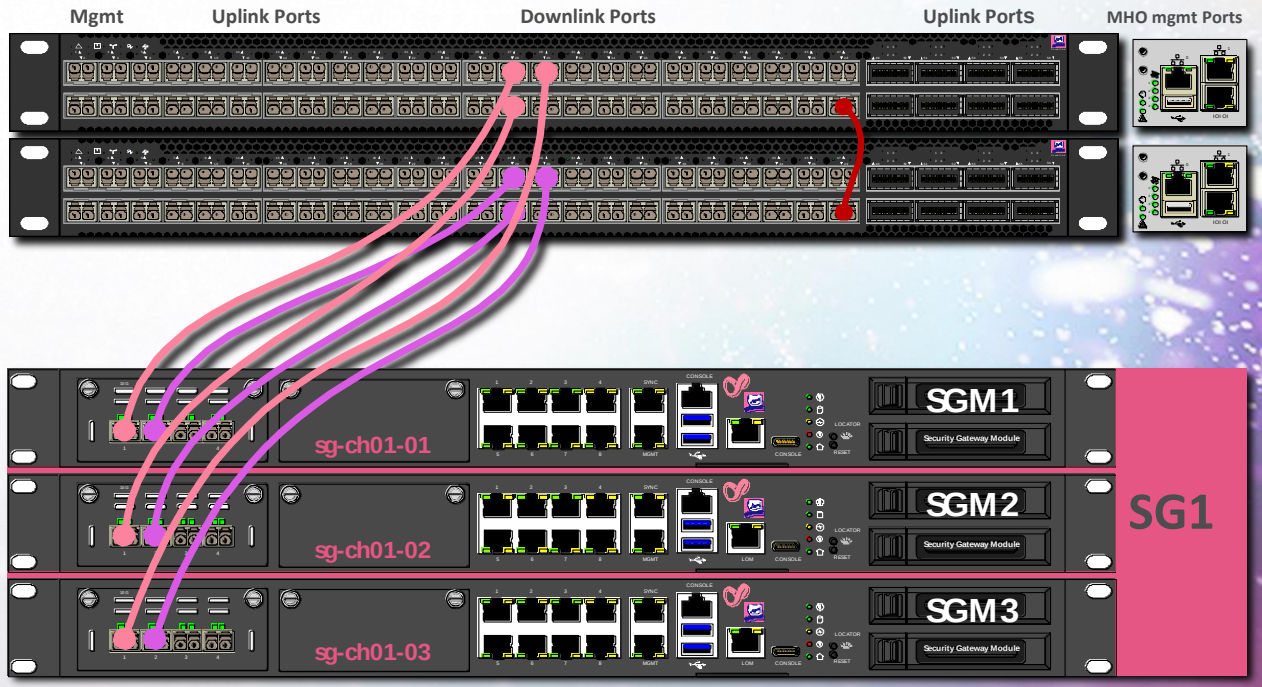
Arquitetura – Maestro Single Site

Uplinks conectados a switches de produção. **Sempre use bond!**

Downlinks são o backplane do Maestro: Cada SGM se conecta a ambos os MHOs.

MHOs redundantes recomendado



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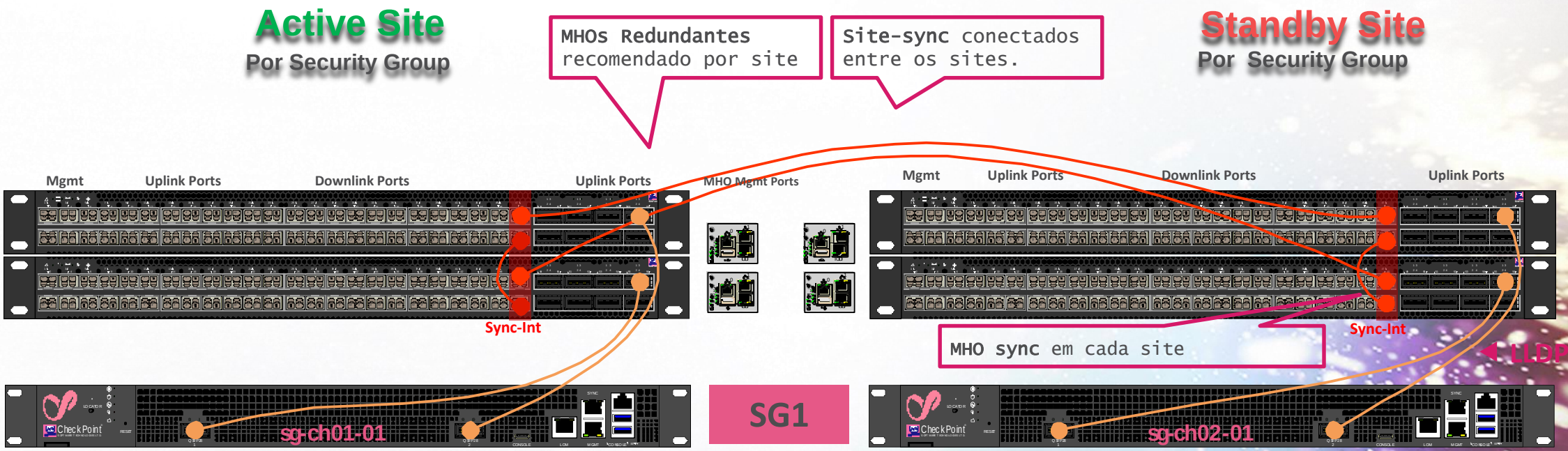
Arquitetura – Maestro Dual Site

- **Dois sites** (max.) em modo active/standby. Uma única entidade na rede.



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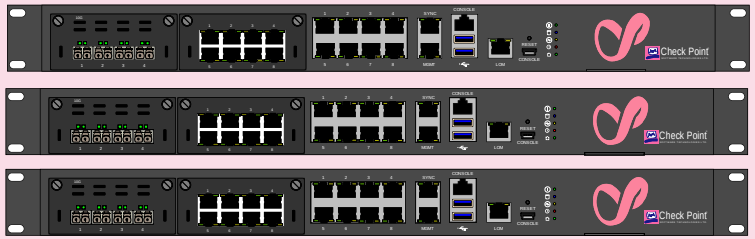
Data Centers Distribuídos – Security Groups

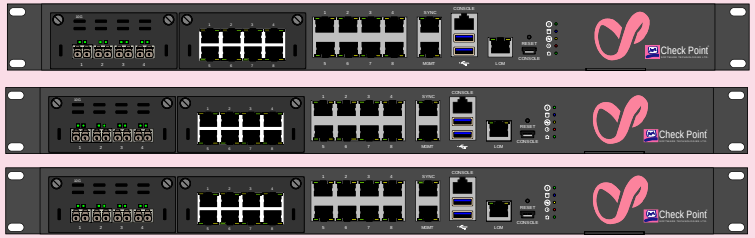
TOPOLOGIA DO MAESTRO

Site #1

Site #2

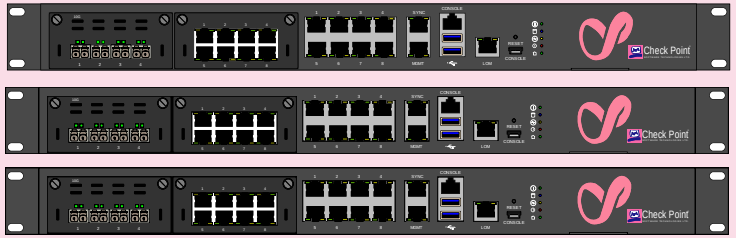
Security Group 1





Security Group 2

Security Group 3



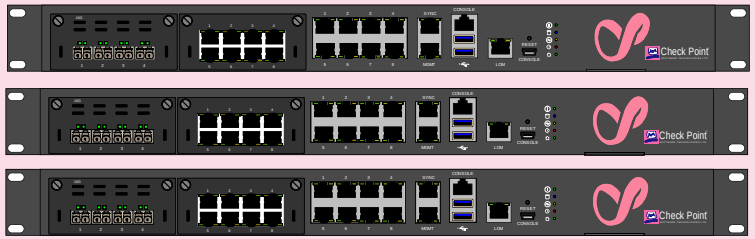
Data Centers Distribuídos – Security Groups

TOPOLOGIA DO MAESTRO

Site #1

Site #2

Security Group 1



HyperSync com Dual site – Security Group

Site **Ativo**

SGM-1

SGM-2

SGM-3

Site **Standby**

A **1.1.1.1:1234 -> 2.2.2.1:80**

B **1.1.1.1:1234 -> 2.2.2.1:80**

B 1.1.1.10:2211 -> 2.2.2.20:22

A 1.1.1.10:2211 -> 2.2.2.20:22

A **3.5.6.3:4578 -> 2.2.2.1:80**

B **3.5.6.3:4578 -> 2.2.2.1:80**

A **3.5.6.33:4578 -> 2.2.2.10:8081**

B **3.5.6.33:4578 -> 2.2.2.10:8081**

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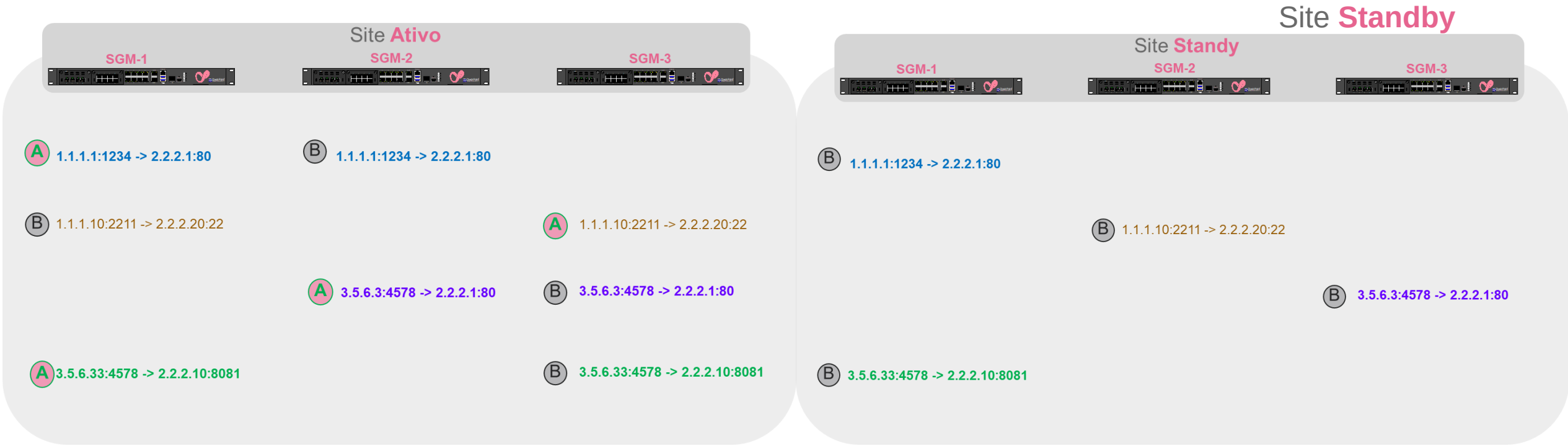
HyperSync com Dual site – Security Group



Security Group

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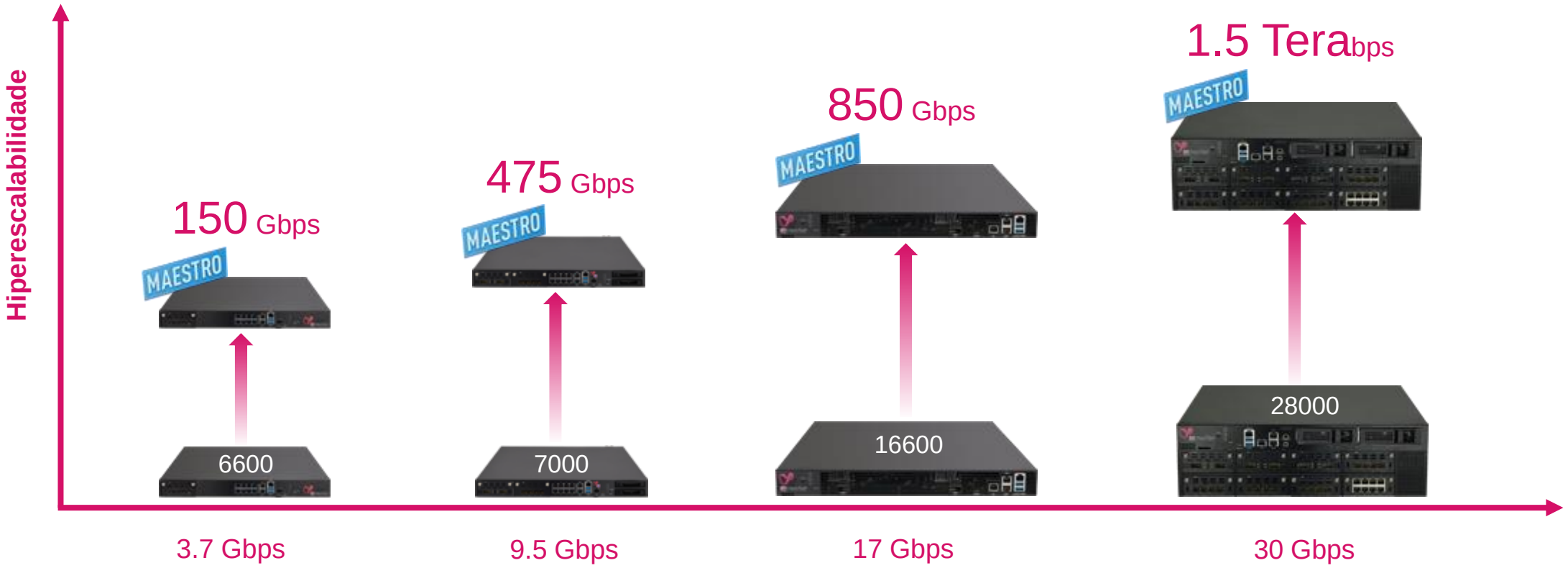
Um salto para a Hiperescalabilidade

SGM (Security Gateway Module)



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Quantum
Maestro

DEMO

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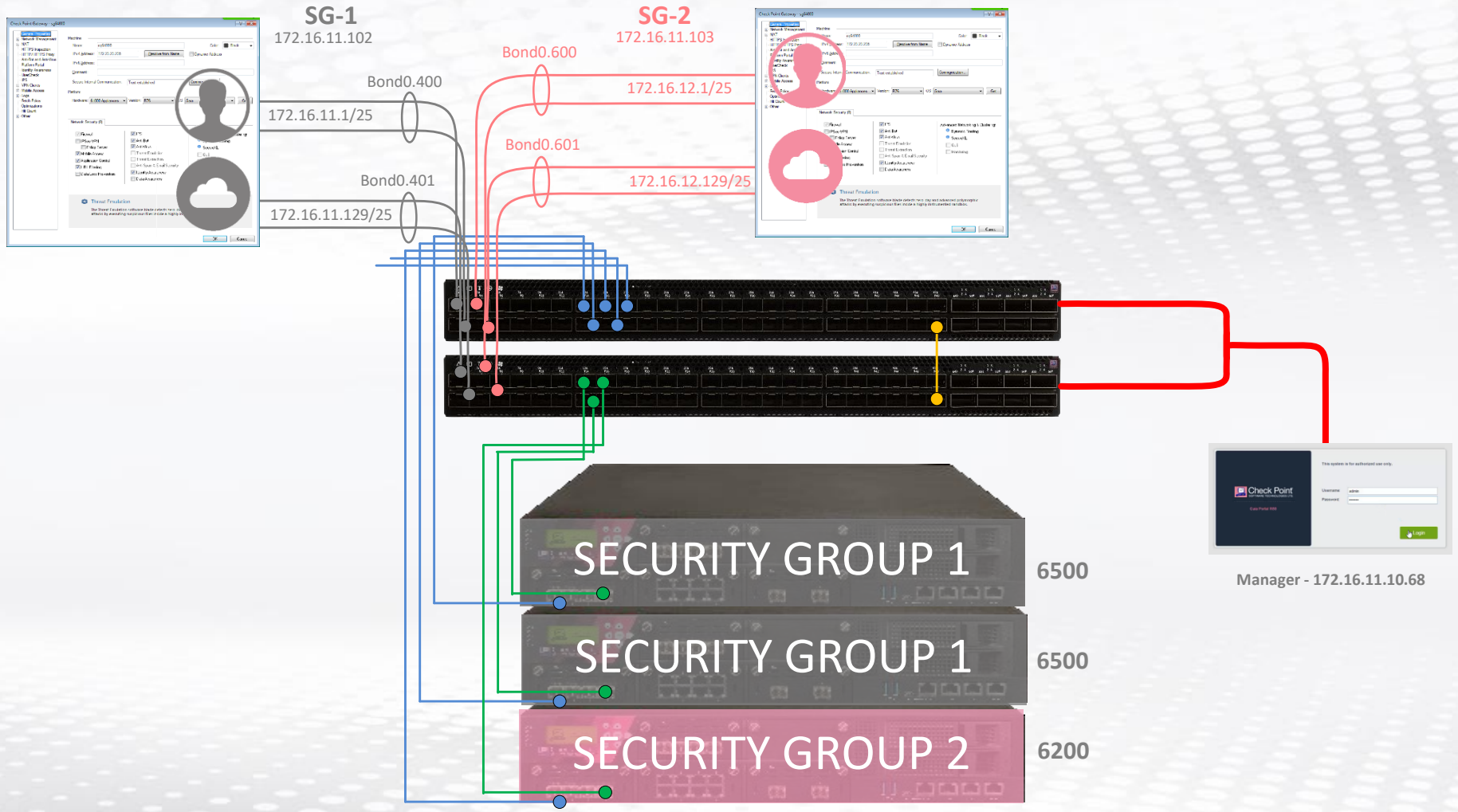
TOPOLOGIA



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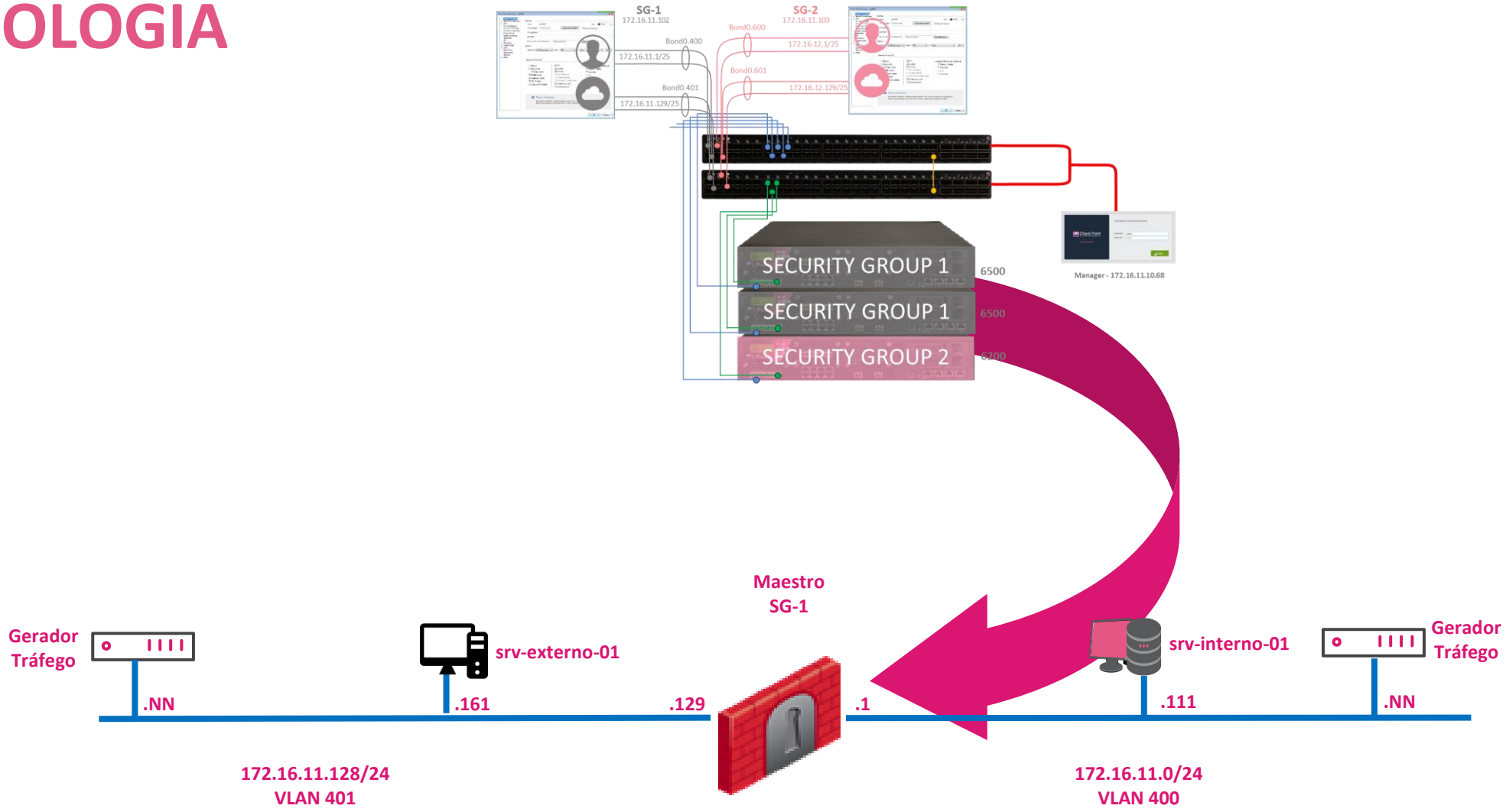
TOPOLOGIA



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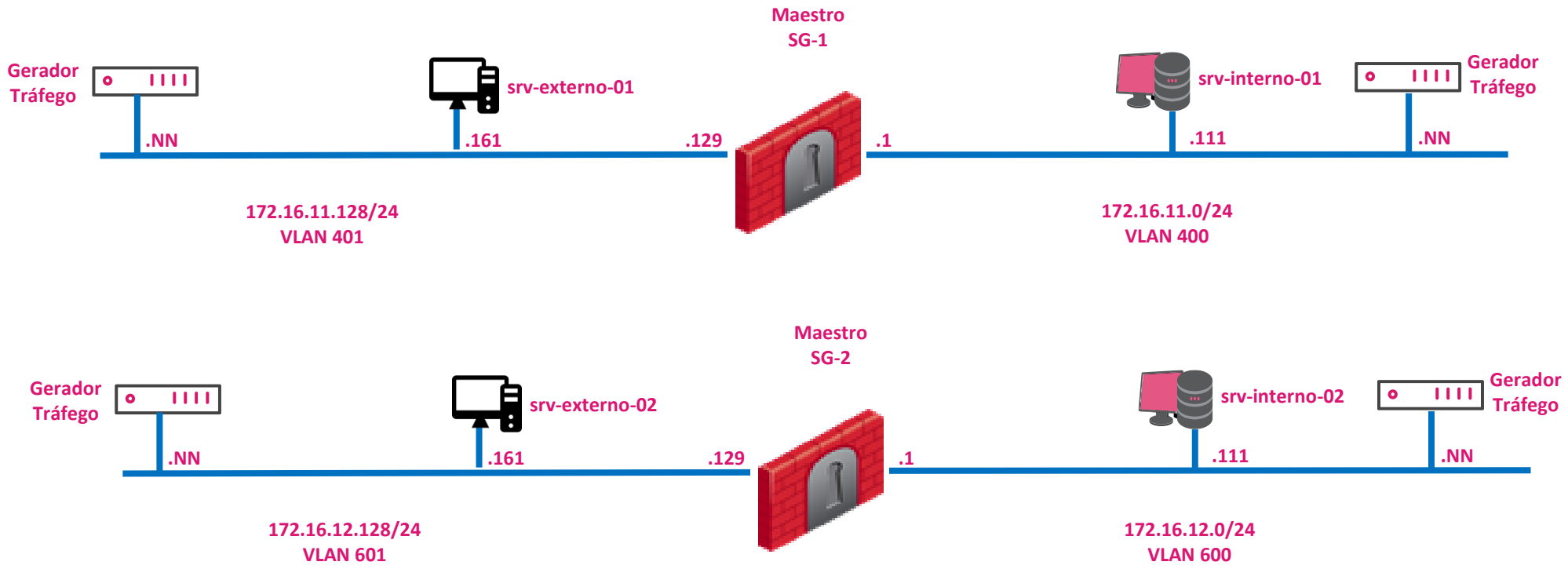
TOPOLOGIA



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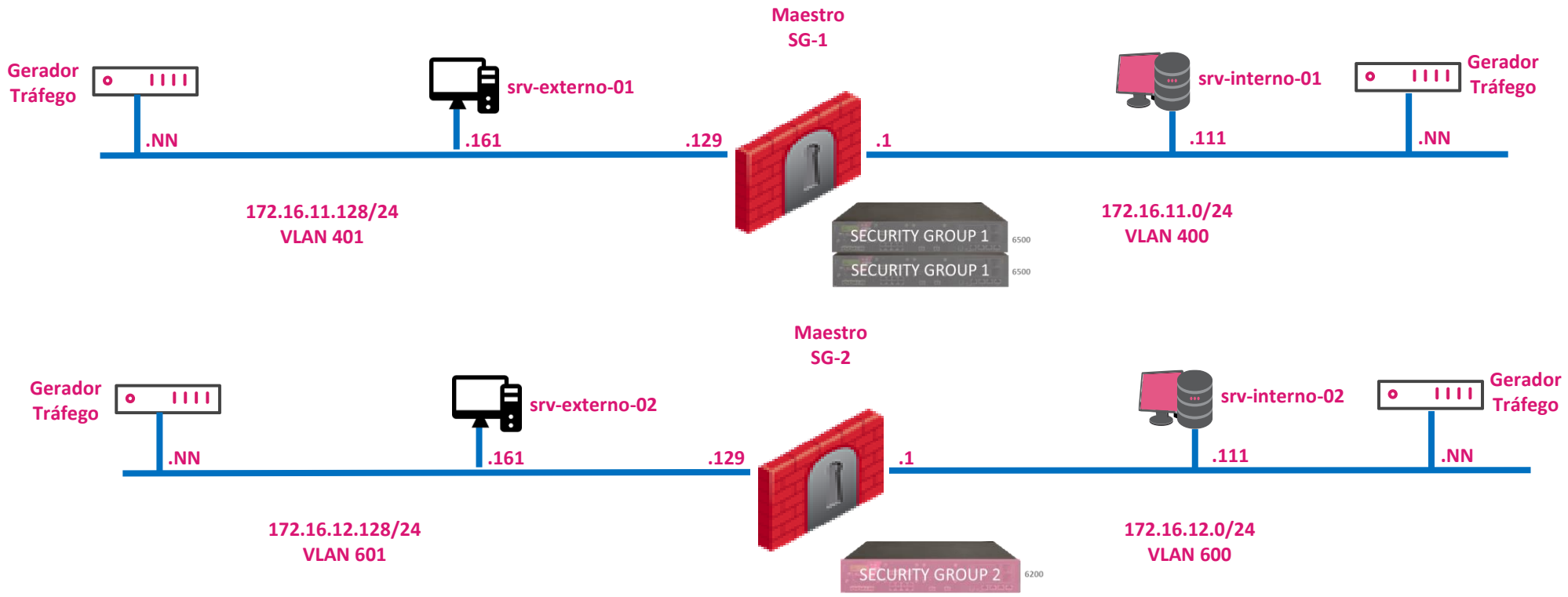
TOPOLOGIA



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Políticas Distintas para Departamentos na Empresa

Escritórios

TRÁFEGO DE CLOUD

Consolidação de Gateways

Gerencia múltiplos gateways lógicos baseado em um SISTEMA ÚNICO para MÁXIMA EFICIÊNCIA

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Políticas Distintas para Departamentos na Empresa

Alavanca o uso do
RESTful API do Orquestrador

ESCRITÓRIOS

AUTO-SCALING

TRÁFEGO DE CLOUD

Auto-Escalável

Aloca Dinamicamente recursos entre
Múltiplos grupos de Segurança em tempo real

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