**NMG Device Hardening & Baseline Configuration Document**

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**Document Abstract:**

This document describes the process/steps as basic guidelines to configure network devices in scope e.g. firewall, switch or router while commissioning to Genpact network. It is in-line to Genpact network landscape & various standard deployed to maintain/upgrade existing network.

**Document Control**

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| Process Owner | Raj Upadhyay |
| Change Reviewers | Raj Upadhyay |

**Summary for Changes:**

A major change in terms of format is made and this is the master document covering all NMG devices hardening & baseline configuration. This document is the sole source of all associated documents. This document being the master document, as all the device hardening consolidating at once place for ease of use and maintenance, this document considered as v1.0. Previous version of basic hardening & configuration document having limitation to Cisco devices only. Considering the business requirement to incorporate the different OEM hardening & configuration guidelines this document introduced as latest & revised version covering all the different OEMs e.g. Cisco, Palo Alto, Arista etc. in it.

Objective to have all devices hardening in one place is to have single source of truth & easier to maintain for all upcoming associated changes. Hence, all the relevant documents attached.

The links to the previous version of various hardening documents is provided in Annexure – 2

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| Ver | Version Date | Nature of Change | Reviewed by | Approved by & Date | Next Review Date |
| 1.0 | 26-May-20 | Major format change covering all the device hardening in one document | Raj Upadhyay | Raj Upadhyay On 26-May-2020 | 25-May-2021 |
| 1.1 | 21-Jul-20 | More commands added & mentioned in 'Remarks' column in Annexure-1 | Ranadheer Kattar | Raj Upadhyay on 21-Jul-2020 | 20-Jul-2021 |
| 1.2 | 3-Aug-2020 | Voice devices hardening section added as Section# 7 | Ranadheer Kattar | Raj Upadhyay on 3-Aug-2020 | 2-Aug-2021 |

**Document Distribution and Review:**

The document owner will distribute this document to all NMG team members upon it is first created and when changes or updates are made.

This document will be reviewed and updated at the request of the Document owner.

**Latest Version of This Document:**

You can obtain the latest version of this document from the following location:

[Click here](https://genpactonline.sharepoint.com/sites/NMGBackupRepository/Shared%20Documents/Forms/NMG%20Backup%20Repository.aspx?id=%2Fsites%2FNMGBackupRepository%2FShared%20Documents%2FNMG%2DGRC%2FHardening%20Document&newTargetListUrl=%2Fsites%2FNMGBackupRepository%2FShared%20Documents&viewpath=%2Fsites%2FNMGBackupRepository%2FShared%20Documents%2FForms%2FNMG%20Backup%20Repository%2Easpx&viewid=fac9914b%2Da93d%2D4fce%2Db9aa%2Dcfc575c1d0f9) to access this document from centralized location NMG SharePoint.

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**Purpose of the Document**

This document gives the detailed information about the standard way of configuring network devices i.e. firewalls, switches, routers, Wi-Fi and voice devices for our network in Genpact. Any new device installed in the network must adhere to the mentioned guidelines & configured accordingly. Any deviations from the standards mentioned in this document would be considered as non-adherence to the standard configuration settings.

**Who Should Use the Document?**

This document apprehended the way activities to be performed by NMG team engineer while commissioning, upgrade, replace any of network device in scope of Cisco Switches or Routers must adhere to our standard as mentioned in the document in order to achieve compliance. This document stored in the secured location, access to document can be requested to Genpact NMG GRC Team [genpactnmggrcteam@genpact.com](mailto:genpactnmggrcteam@genpact.com)

**How to use this document**

This document providing Genpact network overview in section 1, 2 & 3 while section 4 provides the device hardening & baseline configuration.

**Open Issues with Document**

This NMG devices hardening & configuration document is very first of it sort version covering different OEMs e.g. Cisco, Palo Alto, Arista & Voice (Comm mgr & recording) as on date. Previously, no such version covering all different devices hardening & configuration guidelines.

Hardening & baseline configuration of Wi-Fi devices is under development, soon it will be added in this document.

In our next release of this document, referenced remaining devices (Wi-Fi) will be incorporated for basic hardening & configurations.

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# Introduction

## About Genpact Network

Genpact is one of the leading organizations globally in terms business process services and technology. Genpact combines process expertise, information technology and analytical capabilities with operational insight and experience in diverse industries to provide a wide range of services using its global delivery platform.

It provides a wide range of services, including Finance & Accounting, Collections and Customer Service, Insurance, Supply Chain & Procurement, Analytics, Enterprise Application, IT Infrastructure and Management delivering its services from a global network of more than 51+ delivery centers in 17 countries. Genpact global delivery centers are in India, China, Philippines, Romania, Hungary, Poland, Netherlands, Mexico, Guatemala, United States, Japan etc.

It also has very complex network infrastructure to meet the demand of their customers. Network infrastructure plays a major role in determining the success of the business organization. Our services, being backbone of business play utmost critical role in availability, resilience, scalability and location independence.

## Network Managed Group (NMG)

NMG vertical is part of IT group and responsible to support the network, voice and telecom infra related activities within organization. Network domain itself having multiple sub verticals and each domain has got their own deliverables as per business/management expectation. It has following sub-divisions:

1. **NMG-RUN** vertical is responsible to support the operations across all the delivery locations of Genpact. There are multiple devices and links are deployed across organization to support the business requirements.
2. **NMG-BUILD** vertical is responsible for new customer/new Genpact location onboarding. NMG-Build Team is also responsible for the new technology or new solution roll-out.
3. **NMG-Telecom** **Regulatory and Compliance** Team is responsible for Vendor Governance and Telecom Regulatory audits. New links commission/decommission, or link upgrade or downgrade being managed by NMG team.
4. **NMG Video Conference** **and Wireless** team is responsible for managing the Video Conference meetings and Video conference infrastructure across Genpact global location. This team is also responsible for management and roll-out of wireless network across globe.

# Background Information

## Service Pitch & Solutions

Networks are the most critical component of an effective enterprise IT environment. NMG team set the standard for its flexibility, automation, high availability and open standards into your IT landscape so you can meet next-generation agility, innovation and application demand.

Genpact offers various network solutions for the customers as listed:

1. **Shared LAN & Shared WAN:** In Shared LAN, separate VLAN is allocated on the Shared Core Switch. In Shared WAN model, connectivity is provided through Genpact shared links MPLS or Internet Links (Site-to-Site-VPN, Proxy etc.) for MPLS customer separate VRF and separate GRE is created for data segregation.
2. **Dedicated LAN & Shared WAN:** In Dedicated LAN, dedicated access and core switches are installed and either does not have any connectivity or has limited connectivity with the Genpact Corp Network. The WAN links are shared. For WAN, connectivity is provided either through MPLS or Internet (Site-to-Site-VPN, Proxy etc.) Genpact shared WAN links
3. **Shared LAN & Dedicated WAN:** In Shared LAN, separate VLAN is allocated on the Shared Core Switch. In Dedicated WAN, dedicated routers/links are installed.
4. **Dedicated LAN & Dedicated WAN:** In Dedicated LAN, dedicated access and core switches are installed and either does not have any connectivity or has limited connectivity with the Genpact Corp Network. In Dedicated WAN, dedicated routers/links are installed.

## Network Design

Genpact Corp Network is built on the Two-Tier hierarchal design.

While designing or building any network either for any Genpact site or any customer dedicated network; the below points should fulfill;

1. **Redundancy:** Device level as well as Link level redundancy must be maintained in the Core Segment (Core Switches- Firewalls and Routers)
2. **High Availability:** The failover in case of the device or link failure should be automatic and within optimal time. Secondary device/link should be available at all time and should not require manual intervention.
3. **Network Security:** Network traffic should pass through at least one set of Firewall before leaving the Genpact network boundary.

Below diagram depicts a standard network diagram in Genpact site across Globe.



**Note:** Above diagram is to depict the high-level view of network connectivity & may subjected to change upon business need or requirement.

# Secure Operations

## Governance & Compliance Parameters

1. Governance & compliance is utmost priority for our network standard. All offered network services & associated devices/links/configurations being reviewed periodically by internal or external auditors for following domains:
2. Establishment of Services (Commissioning of device/link)
3. ID and Access Management
4. Device Life Cycle Management
5. Devices Backup & Monitoring
6. Incident Management
7. Change Management

## Service Monitoring

NMG using SolarWinds Network Monitoring Service to monitor the complete network infrastructure. Also, using Network Configuration Management for devices backup, bulk changes execution, config comparison & compliance parameters etc. It can be accessible using following link:

[Click Here](https://gcpwinggn3swdap.ind.corp.ad/Orion/Login.aspx) to navigate Network Monitoring System (NMS) using SolarWinds

Given link is internal to Genpact & located on intranet of the organization. Limitation of liability for internal content, it is accessible to the authorized users only.

# Device Specific Hardening Configuration

This section provides the link to the various OEM devices hardening and baseline configuration documents.

## Annexure-1

This annexure provides the hardening & baseline configuration of the following:

Section 1 – Cisco L2 Switch

Section 2 – Cisco L3 Switch

Section 3 – Cisco Router

Section 4 – Cisco ASA

Section 5 – Arista Switches

Section 6 – Palo Alto

Section 7 – Voice Devices (Communication Manager & Recording)

[Click here](https://genpactonline.sharepoint.com/sites/NMGBackupRepository/Shared%20Documents/Forms/NMG%20Backup%20Repository.aspx?id=%2Fsites%2FNMGBackupRepository%2FShared%20Documents%2FNMG%2DGRC%2FHardening%20Document&newTargetListUrl=%2Fsites%2FNMGBackupRepository%2FShared%20Documents&viewpath=%2Fsites%2FNMGBackupRepository%2FShared%20Documents%2FForms%2FNMG%20Backup%20Repository%2Easpx&viewid=fac9914b%2Da93d%2D4fce%2Db9aa%2Dcfc575c1d0f9) to access the Annexure-1 or open the embedded spreadsheet for it.



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## Annexure-2

This annexure provides the previous version of hardening & baseline configuration document.

[Click here](https://genpactonline.sharepoint.com/sites/NMGBackupRepository/Shared%20Documents/Forms/NMG%20Backup%20Repository.aspx?id=%2Fsites%2FNMGBackupRepository%2FShared%20Documents%2FNMG%2DGRC%2FHardening%20Document&newTargetListUrl=%2Fsites%2FNMGBackupRepository%2FShared%20Documents&viewpath=%2Fsites%2FNMGBackupRepository%2FShared%20Documents%2FForms%2FNMG%20Backup%20Repository%2Easpx&viewid=fac9914b%2Da93d%2D4fce%2Db9aa%2Dcfc575c1d0f9) to access the “Annexure-2" folder.

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# References

[Click here](https://genpactonline.sharepoint.com/sites/NMGBackupRepository/Shared%20Documents/Forms/NMG%20Backup%20Repository.aspx?id=%2Fsites%2FNMGBackupRepository%2FShared%20Documents%2FNMG%2DGRC%2FHardening%20Document&newTargetListUrl=%2Fsites%2FNMGBackupRepository%2FShared%20Documents&viewpath=%2Fsites%2FNMGBackupRepository%2FShared%20Documents%2FForms%2FNMG%20Backup%20Repository%2Easpx&viewid=fac9914b%2Da93d%2D4fce%2Db9aa%2Dcfc575c1d0f9) for accessing the Naming Convention Document: “SOP - Device Naming Convention v.*X*” (whereas *X* is latest version of it)

Given link & embedded sparedsheet is internal to Genpact & located on intranet of the organization. Limitation of liability for internal content, it is accessible to the authorized users only. Any duplication, processing, distribution or any form of utilisation beyond the scope shall require the prior written consent of document owner.

# Document Approval

**Process Owner Summary**

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**Rejection Remarks**

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| --- |
| Not Applicable |

**Approval artifact**

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# Glossary

B

1. **Bi-Model:** Network segment for support users to have segregrate network from other production subnets.

C

1. **Customer:** Either the internal customer of Genpact (process users) or external customer whom Genpact supporting or giving services.

G

1. **GSocial:** Intranet site for Genpact employees having repository & links for various applications including HelpMate.
2. **GRC:** Governance, Risk & Compliance function within NMG RUN team.

H

1. **HelpMate:** Intranet ticketing tools for IT support related to services, incidents, change etc. backend supported by Remedy.
2. **Hardening:** Hardening is a process of implmenting secure configuration as per best practices & information security guidelines.
3. I
4. **ISP:**  Internet Service Provider providing links to the organizations e.g. AT&T, BT, TATA, Air-Tel etc.

N

1. **NMG:** Network Management Group in organization (Genpact) NMG vertical is responsible to support the network operations and project across all the location of Genpact.
2. **NMS:** Network Monitoring System is an application/tool of SolarWinds use in the organization (Genpact) to monitoring & capturing the states IT infra devices.

S

1. **SharePoint:** SharePoint is the centralized repository for NMG team to place all documents.

T

**TOC:** Technical Operation Center is a team in NMG to support 24x7 operations in relate to network operations.