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T11-15

LAB ASSIGNMENT 9

AIM: Installation of nagios on ubuntu system.

LAB OUTCOME:

LO1, LO5 Mapped.

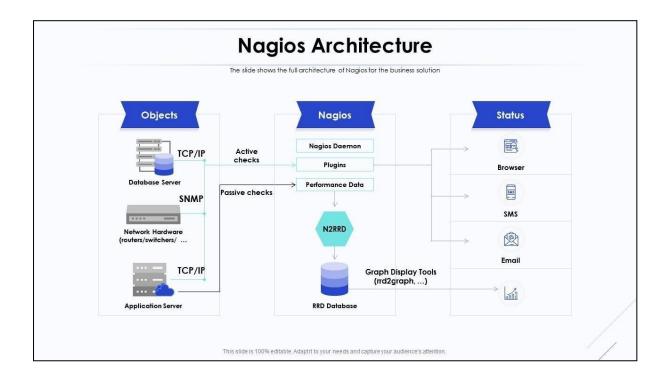
THEORY:

Nagios is an open-source monitoring and alerting system that is widely used to monitor the availability and health of IT infrastructure components, including servers, network devices, applications, and services. It helps organisations maintain the reliability and stability of their systems by providing real time visibility into the performance and status of various components in their environment.

Key features and components of Nagios includes:

- 1. Host and Service Monitoring: Nagios allows users to define hosts (e.g., servers, routers) and services (e.g., web services, email servers) to be monitored. It periodically checks these hosts and services to ensure they are functioning correctly.
- **2. Alerting and Notification**: When Nagios detects a problem or a service outage, it can send notifications to designated administrators or teams through various methods, including email, SMS, and custom scripts. This enables timely responses to issues.
- **3. Flexible Configuration:** Nagios is highly configurable and allows users to define custom checks, thresholds, and notification rules. This flexibility makes it suitable for a wide range of monitoring scenarios.
- **4. Web Interface:** Nagios provides a web-based dashboard that offers a real-time view of the monitored infrastructure's status. Administrators can access this dashboard to see which services are up or down and view historical performance data.
- **5. Plugin Architecture:** Nagios uses a plugin system that allows users to extend its monitoring capabilities. Many plugins are available for monitoring specific applications, devices, or protocols, and users can develop custom plugins as needed.
- **6. Performance Graphs**: Nagios can collect performance data and display it in graphs and charts. This helps in analysing historical trends and identifying potential issues before they become critical.
- 7. **Event Logging**: Nagios keeps a detailed log of monitoring events and notifications. This log can be useful for troubleshooting and auditing.
- **8. Scheduled Downtime**: Administrators can schedule downtime for planned maintenance or upgrades to prevent unnecessary alerts during maintenance windows.
- **9. Community and Support**: Nagios has an active user community, which provides resources, documentation, and support for users. There are also commercial versions and third-party tools built around Nagios for additional features and support.

Nagios is highly versatile and can be used in various IT environments, from small businesses to large enterprises. It plays a crucial role in ensuring the availability and performance of critical infrastructure components, helping organisations proactively address issues and minimise downtime. Additionally, Nagios can be integrated into larger IT management and monitoring solutions to provide comprehensive visibility into an organisation's technology stack.



WORKING:

Nagios works based on a simple yet effective principle: monitoring and alerting. It continuously checks the status and performance of various hosts (e.g., servers, network devices) and services (e.g., applications, websites) by running predefined checks, known as plugins.

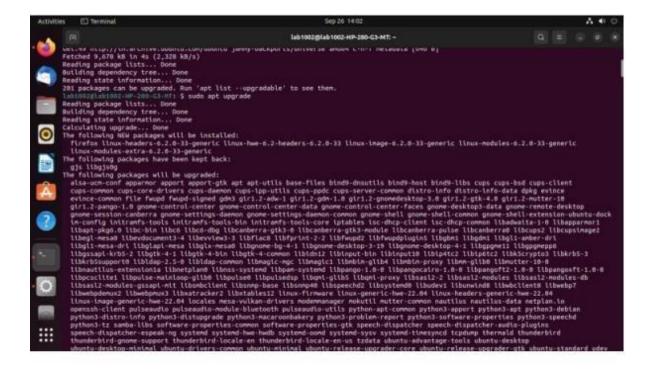
- 1. Configuration: The Nagios administrator defines what needs to be monitored and how in a configuration file. This includes specifying hosts, services, notification settings, and alert thresholds. Users can configure checks to run at specific intervals, such as every minute, and set warning and critical thresholds for each service (e.g., response time should be under 200ms).
- 2. Checks and Plugins: Nagios periodically runs these checks based on the defined intervals and uses plugins to perform the checks. A plugin is a small script or executable that carries out a specific monitoring task, such as pinging a server, checking the HTTP response code of a website, or monitoring disk space usage.
- **3. Status Data**: After running the checks, Nagios collects status data, including the results of the checks, timestamps, and performance metrics (if applicable). This data is stored internally.
- **4. Alerting and Notifications**: If a check indicates a problem (e.g., a service is down, a server is unresponsive, a threshold is exceeded), Nagios triggers an alert. Alerts can be notifications sent to administrators or teams through various means, such as email, SMS, or custom scripts. These alerts inform relevant personnel about the issue, enabling them to take action.
- **5. Dashboard and Reports**: Nagios provides a web-based dashboard where administrators can view the real-time status of monitored hosts and services. They can see which services are up, which are down, and view historical performance data in the form of graphs and charts. This dashboard is a central hub for monitoring and managing the infrastructure.

- **6. Event Logging**: Nagios keeps a detailed log of all monitoring events, including check results, alerts, and notifications. This log serves as an audit trail and can be useful for troubleshooting and historical analysis.
- 7. **Scheduled Downtime**: Nagios allows administrators to schedule downtime for hosts and services during planned maintenance windows. This prevents Nagios from generating unnecessary alerts during maintenance activities.
- **8. Recovery Notifications:** When a previously failed service or host returns to a healthy state, Nagios can send recovery notifications to inform administrators that the issue has been resolved.
- **9. Escalation and Acknowledgements**: Nagios supports advanced features like escalation, where alerts can be escalated to higher-level teams if not acknowledged or resolved within a certain timeframe. Administrators can also acknowledge alerts, indicating that they are aware of the issue and are working on it.
- 10. **Performance Data:** Nagios can collect and display performance data, which helps in identifying trends, bottlenecks, and potential issues before they become critical. This data can be used for capacity planning and optimization.

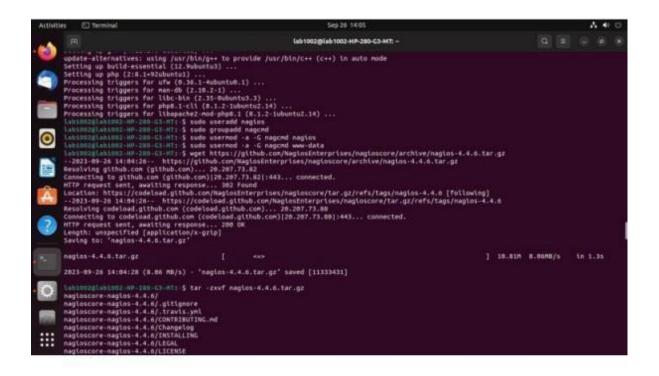
Nagios operates continuously, providing real-time monitoring and alerting for IT infrastructure components. It helps organisations maintain the availability and performance of their systems and applications while enabling prompt responses to issues, ultimately reducing downtime and ensuring a more stable IT environment.

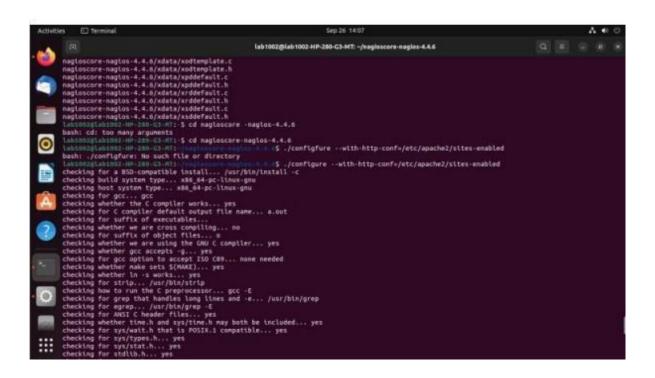
INSTALLATION STEPS:

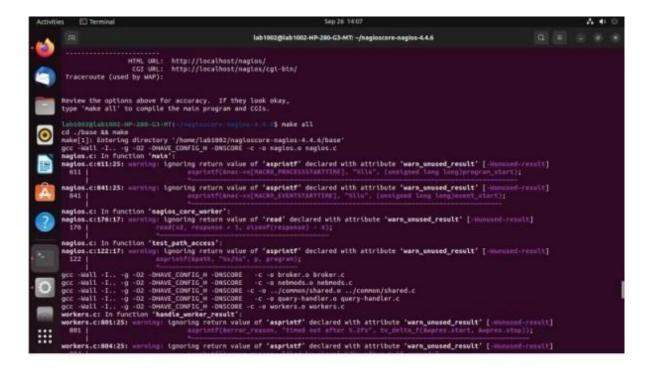
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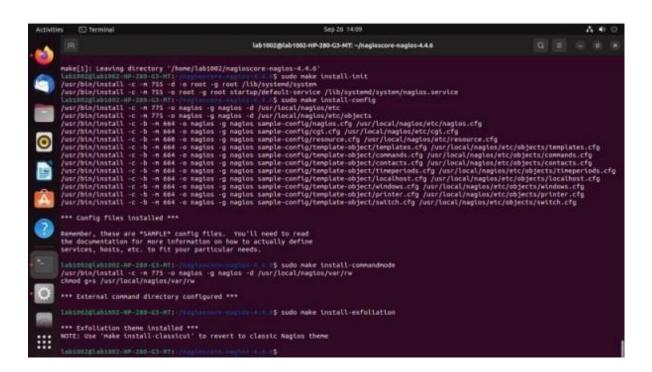


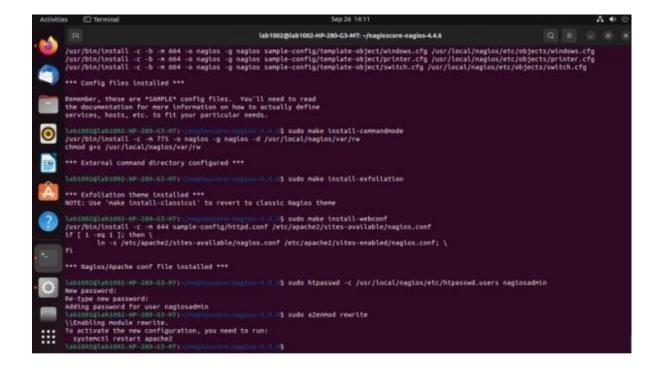


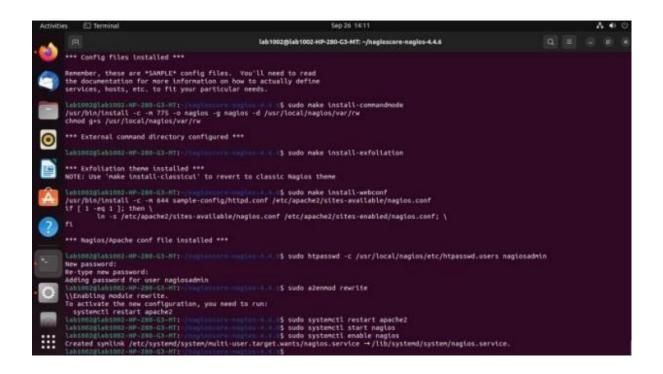
















CONCLUSION:

In this assignment, we successfully installed Nagios on an Ubuntu system, setting up a robust monitoring and alerting framework for efficient system management and proactive issue resolution.