**User stories**

**Device Discovery:**

User Story: As a network administrator, I want to ensure efficient device discovery to maintain an accurate inventory of all devices connected to the network.

Acceptance Criteria:

* The system should automatically scan the network infrastructure to discover all connected devices, including routers, switches, servers, printers, endpoints, and any other networked devices.
* Devices should be accurately identified based on their MAC addresses, IP addresses, and other unique identifiers.
* The discovery process should cover both wired and wireless devices within the network.

**Live Dashboards:**

User Story: As a network manager, I want to monitor network performance in realtime through customizable dashboards.

Acceptance Criteria:

* 1. The system provides real-time visualizations of network performance metrics, including bandwidth usage, latency, and packet loss.
* 2. Dashboards are customizable based on user roles, allowing different stakeholders to view relevant metrics.
* 3. Users can configure dashboards to display specific performance metrics and KPIs.

**Bandwidth Monitoring:**

User Story: As a network engineer, I want to track bandwidth usage across devices, applications, and protocols, and receive alerts for abnormal consumption.

Acceptance Criteria:

* + The system tracks bandwidth usage by device, application, and protocol.
  + Users can set threshold-based alerts for abnormal bandwidth consumption.
  + Alerts are sent via email, SMS, or in-app notifications.

**3.4 Network Configuration Management**

**3.4.1 Configuration Backup**

**User Story:**

As a network administrator, I want automatic backup and compare configurations for network stability.

Acceptance Criteria:

* The system should automatically back up network device configurations regularly without intervention.
* Each backup should be version controlled, to view historical configurations and changes.
* The system should have the capability to compare configurations for easy identification between them.

**3.4.2 Compliance Checks**

**User Story:**

As a network administrator, I want automated checks and alerts for non-compliance with industry standards and internal policies.

Acceptance Criteria:

* The system should scan network configurations to ensure compliance with industry standards and internal policies.
* When non-compliance with standards or policies is detected during configuration checks, the system should generate alerts.
* Alerts should be sent via email or SMS.

**3.5 Alerts and Notifications**

**3.5.1 Customizable Alerts**

* Allow users to set up custom alerts for specific events or thresholds.
* Alerts via email, SMS, or in-app notifications.

**USER STORY 1**

As an IT administrator, I want to be able to customize alert thresholds for various network parameters so that I can receive notifications based on specific conditions.

**Acceptance Criteria:**

* The system should provide a user-friendly interface accessible to the IT administrator for configuring alert thresholds.
* While logged into the network monitoring system, when I navigate to the alert settings section, I should see options to customize threshold values for parameters such as bandwidth usage, latency, and packet loss.
* Upon reaching or exceeding a customized threshold, I should receive an alert notification via email or within the web interface.

**USER STORY 2**

As IT and system administrators, we want to control when we receive alerts to avoid unnecessary disruptions during non-critical hours.

**Acceptance Criteria:**

* The interface for configuring alert settings should be intuitive and easy to use.
* The network monitoring system should include a "Time-Based Settings" feature accessible to both IT and system administrators.
* Administrators can define specific time ranges during which alerts are active (e.g., business hours).
* Administrators can set a start and end time for alerting, enabling them to control when alerts are active.

**USER STORY 3**

As a system administrator, I want the flexibility to choose the channels through which I receive alerts, so that I can be notified through my preferred communication methods.

**Acceptance Criteria:**

* The system should provide a user-friendly interface where the administrator can set alert notification preferences.
* In the "Notification Preferences" section, I should be able to choose from various communication channels (email, in-app notification).
* When I select email, I need to provide the email address where alerts will be sent.
* In-app notifications should be displayed within the network monitoring system interface.

**3.2 Performance Analysis:**

**User story 1:**

1. As a network administrator, I want to view a basic representation of the network topology so that I can quickly understand the interconnections between devices.

**Acceptance criteria:**

* The network topology representation should be clear and straightforward, allowing the network administrator to quickly grasp the overall structure and interconnections between devices without unnecessary complexity.
* Each device in the network should be easily identifiable with distinct symbols.
* The interconnections between devices should be visually represented, highlighting the type of connections e.g., wired, wireless and bandwidth where applicable.

**User story 2:**

1. As a network administrator, I want to access detailed information about a specific device on the network map, including its IP address, MAC address, and status, to facilitate troubleshooting and maintenance.

**Acceptance criteria:**

* Clicking on a specific device on the network map should display detailed information such as the device's name, type, and a clear identifier, aiding quick recognition.
* The detailed information should prominently display the IP address associated with the selected device.
* The device's status e.g., online, offline, error should be clearly indicated in the detailed information. This allows the network administrator to identify any issues promptly and take appropriate action.

**User story 3:**

1. As a network administrator, I want critical devices e.g., servers, routers to be visually distinct on the network map, so that I can quickly identify and prioritize them during troubleshooting or monitoring.

**Acceptance criteria:**

* Critical devices, such as servers and routers, should have a visually distinct representation on the network map, using unique symbols, colours, or labels. This ensures immediate recognition and differentiation from other non-critical devices.
* Provide the option for the network administrator to customize the visual elements used to distinguish critical devices.
* Include a key on the network map, explaining the visual cues used to identify critical devices.
* Ensure that the visual distinction of critical devices remains consistent across different views or zoom levels on the network map.

**3.6 Reporting and Analytics**

**3.6.1 Pre-built Reports**

**User Story 1: Pre-built Report Access**

As a network administrator, I want to access pre-built reports on network health and performance, so I can quickly assess the overall status and identify any issues that require attention.

**Acceptance Criteria:**

* The system should provide a menu or dashboard where pre-built reports are easily accessible.
* Each pre-built report should be labeled clearly according to its content (e.g., "Network Health Report," "Performance Analysis").
* The reports should include relevant metrics and insights to facilitate efficient analysis.
* Reports should be regularly updated to reflect real-time or near-real-time data.
* Users should be able to customize the time frame for which the reports are generated (e.g., last 24 hours, last week, last month).

**User Story 2: Custom Report Generation**

As a network manager, I want to generate custom reports based on user-defined criteria, so I can tailor the analysis to specific needs or requirements of different stakeholders.

**Acceptance Criteria:**

* The system should provide an interface for users to specify criteria for custom reports, such as selecting specific parameters, time frames, and data sources.
* The system should allow users to save their custom report templates for future use or modification.
* Custom reports should be generated promptly, with minimal delay, to ensure timely decision-making.

**3.6.2 Trend Analysis**

**User Story 1: Performance Trend Analysis**

As a network analyst, I want to analyze performance trends to identify potential issues proactively, so I can address them before they impact operations.

**Acceptance Criteria:**

* The system should collect historical performance data over time from various network components and systems.
* Users should be able to visualize performance trends through graphs, charts, or other relevant visualizations.
* The system should highlight any significant deviations or anomalies in performance trends that may indicate potential issues.
* The system should provide alerts or notifications when performance trends exceed predefined thresholds or exhibit unusual patterns.

**User Story 2: Predictive Analytics for Capacity Planning**

As a network capacity planner, I want to utilize predictive analytics to forecast future capacity requirements accurately, so I can effectively allocate resources and prevent performance blocking.

**Acceptance Criteria:**

* The system should analyze historical usage patterns and performance metrics to identify trends and patterns.
* Users should be able to input future growth projections, seasonal variations, and other relevant factors into the predictive analytics model.
* Forecasts should include estimates of resource utilization, such as bandwidth usage, storage capacity, and processing power.
* The system should provide recommendations for capacity adjustments or upgrades based on the forecasted requirements and available resources.
* Users should be able to simulate different scenarios and adjust input parameters to evaluate the impact on capacity planning decisions.