System Planning: Concept

System Monitoring Server

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# Project Concept

The company, as a SaaS product provider, has a plethora of systems and networks that require consistent performance and high uptimes to service customers. This project proposes to develop a systems monitoring server tailored to meet the evolving monitoring and customer communications needs of the company in the operations space. In a technology-driven business landscape, maintaining seamless system operations has become paramount for success (Rubin, 2023). However, the complexities of modern infrastructure and the demand for continuous availability pose significant challenges. To address these challenges, this project proposes a comprehensive solution that offers real-time monitoring, alerting, and transparent communication to users.

# Problem Statement

Inefficient system monitoring, disjointed incident management, and inadequate communication during downtime undermine the operational resilience and customer satisfaction (Team, 2022).

This business problem affects a wide spectrum of stakeholders across the organization, including:

* **DevOps Teams:** DevOps teams encounter difficulties in identifying issues early due to a lack of real-time insights, leading to extended downtime and increased operational costs.
* **IT Administrators:** IT administrators grapple with manual incident management processes, causing delays in response and resolution times, adversely affecting system performance and user experience.
* **Support Engineers:** Support engineers face erosion of customer trust when they fail to provide timely and transparent updates about incidents, potentially leading to customer churn (Digital, 2023).

# Technology Solution

The proposed solution is a comprehensive systems monitoring server that combines monitoring, alerting, and user visibility in a unified platform. Specifically, the system will allow users to define servers to monitor by providing an IP or an http(s) URL, and a list of users’ email addresses to alert in the event of issues. The system will continually monitor all IPs via ping and URLs via curl, and email alerts in the event of invalid status codes. A status page, showing a list of monitored servers, their current pass/fail state, and any recent issues will also be provided.

The proposed system addresses the business problem by offering single-pane-of-glass solution that spans monitoring, alerting, and communication. Unlike existing solutions that are costly and often lack customization and automation capabilities, this application aims to deliver a tool with the following benefits:

* **Cost-Effective:** The utilization of open-source technologies inherently reduces the financial burden for the system. By leveraging existing open-source components and frameworks, the solution minimizes development costs while delivering a feature-rich system monitoring application (Congdon, n.d.). This cost-effectiveness is vital, particularly as the environment scales and needs to monitor hundreds of systems.
* **Resilient to Failure:** Embracing open-source technologies equips the solution with inherent resilience. The extensive community support and continuous development of these technologies ensure a robust foundation and built-in HA/DR functionalities that do not require in-house engineering. This resilience to failure is paramount for maintaining uninterrupted monitoring and incident management operations, safeguarding business continuity in the face of unexpected challenges.
* **Easily Deployable:** The solution enables simplified deployment across diverse environments via containerization (*What Is Containerization, Its Benefits, and Deployment: Site24x7*, n.d.). The modularity and compatibility of these technologies facilitate seamless integration with existing infrastructure, expediting the implementation process.
* **Highly Customizable:** The solution leverages user-editable templates throughout the entire application to offer high levels of customization. The organization can thus tailor the monitoring dashboard, alerts, and status pages to align with any unique branding and operational requirements. User-editable templates ensure any future branding changes do not require significant engineering effort.

# References

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