Rolling Studies at Nvidia

My experience leading weekly usability & concept testing studies for monitoring techniques used by the Kubernetes Cloud software development teams at Nvidia.

OVERVIEW

Project Duration: 4 months

Responsibilities: Dashboard Development; Usability & Concept Testing; Surveys; Interviews

View My Project Team: Nvidia Kubernetes Development

View My Paper: Monitoring Methods Analysis for Cloud Native Technology

PROBLEM

With increasing number of AI powered applications and the broad availability of GPUs in public cloud, there is a need for Kubernetes, the highest-velocity open-source project in history, to be GPU-aware.

SOLUTION

Throughout the Kubernetes development process, monitoring solutions are required to track VM/GPU integration success and to access system and Kubernetes cluster health.

IMPACT

The addition of a monitoring dashboard can *connect 1000+ developers* working on Kubernetes projects. The solution aims to *save 2 hours* of weekly system metrics pulling for each developer.

CONCEPT TESTING

Is there a need for this product?

Do participants already use a product that offers similar features?

Have there been past situations at work where this product would have made the user's life easier?

What would make users decide to use the dashboard?

USABILITY TESTING

What makes sense or causes confusion to users?

How easy or difficult is it to do certain tasks?

Does the product match users' expectations?

What risks need to be resolved before shipping the product?

INTERVIEW RESULTS

	Cloud DevOps	Cloud Engineer	Cloud Architect
Focus Areas	Deployment	Development	Architecture
Task Assumptions	Monitoring networks and handling issues in the cloud space	Building cloud environment and integrating 3rd party software	Designing cloud architecture and entire environment
Daily Monitoring Required	✓	✓	
Likes	Easy to set policies, and to detect incidents	Easy to troubleshoot, and to fix issues	Easy to see entire environment like maintenance and billing
Dislikes	Time consuming to check filters for incident handling	Difficult to test deployment success	Complex architecture
Pain Point	Need alerts of the risks	Reluctant to adopt a new product	Everything is tied to documentation
SOLUTION	Design a dashboard	Value & instruction explanations on the dashboard	

IDEATION TIMELINE

Literature review (WEEK 1-2)
Learn about the existing k8s technology stacks and identify areas of opportunity

Primary research (WEEK 3-4)
Explore issues of the users' sense of trust, safety, control, and preference with cloud monitoring

Affinity diagramming (WEEK 5-6)
Consolidate interview/survey findings and discover data-driven insights

Content generation (WEEK 7)
Generate ideas within the cloud monitoring space and potential mediums

EXECUTION TIMELINE

Content pre-testing
(WEEK 7)

Narrow down ideas and identify concepts with greater potential to pursue

Prototyping
(WEEK 8-11)

Develop prototype and explore top concepts with small teams to determine potential product directions

Usability testing
(WEEK 12-15)

Ensure mental-model match and user comprehension of the dashboard

Debrief
(WEEK 16)

Outline findings on research findings and document current progress

EXAMPLES OF PRODUCT FEATURES I DEVELOPED

- Prometheus Logs Exploration
- Grafana Metrics Visualization
- Alert Settings
- Built-in Collaboration Page

***Final product is not displayed due to NDA(Non-Disclosure Agreement).

CONTACT

Do you have any questions?

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