CONATIX Cybersecurity Alert Display Dashboard Des

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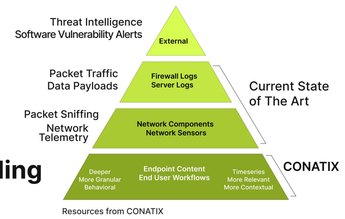
Abstract

This study focuses on the **alerts visualization** of cybersecurity platforms and cooperate with the cybersecurity software development company - CONATIX. The research aims to deeply explore how to efficiently assist users in **identifying and comprehending** potential risks after detecting anomalies.



Introduction & Background

The development of the Internet has caused serious concerns about cybersecurity in various industries. Especially in IT industry, the continuous development of digital technology has highlighted the need to protect sensitive information. To cope with this urgency, **cybersecurity detection software** becomes paramount. In the literature research, research into **dynamic visualizations** of network security information remains relatively limited. Collaborating with CONATIX, a network security software development enterprise, this study delves into the interaction relationship between **users and dynamic visualization boards**.

Dashboard Design

Key Functions

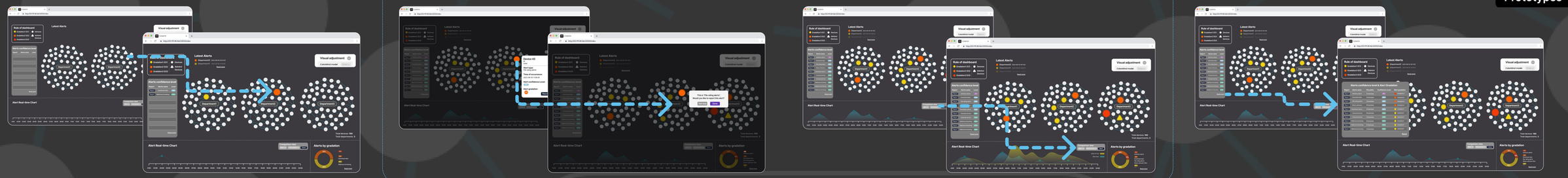
Function1. Alerts appearance

Function2. Learn more details about alerts

Function3. Generate comparison Review

Stage4. Check the confidence level

Interactive Prototypes



Test Design

The entire project has undergone 2 rounds of testing including Usability Testing and A/B Testing and an Eye gaze tracking experiment.

Method: Usability test and A/B test.

Sample selection: 9 participants.

Survey design: Invite participants to complete tasks on 3 interactive dashboards, and then evaluate user completion, satisfaction, and recommendations based on user feedback.

Method: Eye gaze track Experiment.

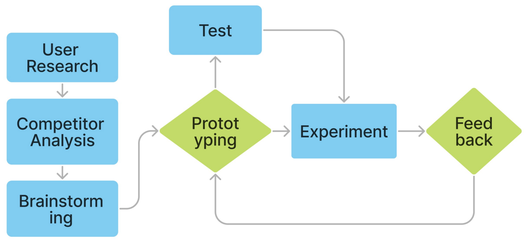
Sample selection: 5 participants.

Survey design: Participants are invited to complete tasks on prototypes in a simulated working environment, use "Tobii Screen" to track the user's visual trajectory, and finally evaluate whether the user can effectively observe changes in prototypes.

Design Methodology & Methods

Methodology

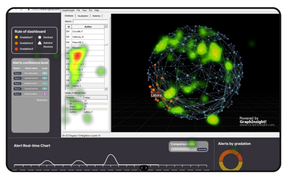
- User-Centered Design
- Double-Diamond Model
- Scenario-based Design
- User Experience Design



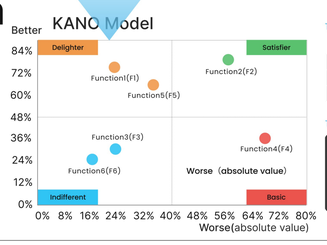
Research Result

- According to the analysis of the eye gaze track experiment results, I found that the user's visual attention is focused on the **"Main Review"** and the **"side bar"**. This is not conducive to browsing other info.
- According to the results of usability test, I made a **KANO model** to evaluate the user's satisfaction with different functions, and keep the **F1, F2, F4, F5** in the next stage.
- All Dashboards performed poorly on the visual fatigue test, and Dashboard2 performed slightly better. High contrast will cause excessive fatigue, but is good for viewing information. This is a **double-edged sword**.
- **Dynamic visualization** is more effective in capturing users' attention.

Test Evaluation



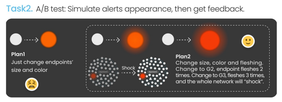
Heat map generated from eye gaze track result



Task1. Stare at every dashboard for around 2 min, tell me how you feel?

	Tired	Slightly tired	Neither tired nor comfortable	Slightly Comfortable	Comfortable
Dashboard1	0%	40%	40%	0%	20%
Dashboard2	20%	20%	20%	40%	0%
Dashboard3	20%	40%	20%	20%	0%

Task2. A/B test: Simulate alerts appearance, then get feedback.



Conclusion

- Conclusions can be derived from experiments, highlighting that **intricate dynamic changes** are more adept at capturing users' attention, thereby facilitating the detection of security anomalies.
- Users have demonstrated a heightened interest in **3D visualization** boards. Nonetheless, further investigation is necessary to ascertain if prolonged usage sustains elevated user loyalty.
- By combining **various functions** such as "Main View," "Alert Confidence Level Bar," and "Real-time Alert Chart," users can efficiently comprehend information behind alerts.

Future Work

After evaluating the results of the second round of testing, further optimizations will be made to the high-fidelity prototypes.

Neither of the two rounds of usability test included an evaluation of user loyalty. In the future, I will continue to gather user feedback from CONATIX, allowing for ongoing iterations to enhance UX.

Exploring methods to help users alleviate visual fatigue is an area I need to further investigate, as visual fatigue will be a significant factor affecting user experience.