Recommendations catalogue for usability design in network monitoring tools

R1 - Movements representing a situation change	
Description: Perceptible transition movements "from one state to another" improve cognition capacity, guiding the user's attention to inform about the change that occurred. Thus, it is recommended to present the change of any level of criticality or situation with a transition movement.	**Illustration:** 
Dataset: Flags, Levels (numerical scale), True-False.	
Interactivity: Fade in, Fade out, movements, transformations.	
Observations: An additional entry with the date and hour when the last change occurred might be useful in case the user hasn't noticed the change.	
When to avoid: Must be avoided when the element used to represent the movement or transformation is too small.	

R2 - Colors representing the state of elements

Description: Colors such as green, yellow and red, are useful to direct the user's attention, allowing him to assign the meanings "success", "alert" and "problem" to the colors, respectively. This allows the administrator to identify the state of the network elements and correct problems more quickly. However, it is important to consider color blind people, who would not be able to recognize colors, so in addition to colors, there must be some other way to allow the user to identify the state of the network elements.

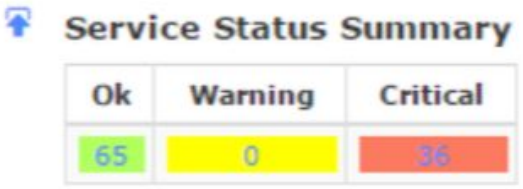
Dataset: Flags, Levels (numerical scale), True-False.

Interactivity: Does not apply.

Observations: It is necessary to be careful with very close colors, for example, when using a scale from light to dark, as they can be confused.

When to avoid: Must be avoided when the monitor is monochrome or only capable of displaying shades of gray and when the number of items that will be represented with colors is very large (greater than 16).

Illustration:



R4 - Obtaining detailed information with mouse pointer

Description: Storing the measurement history and the granularity of the collected information can result in highly detailed graphs. So the use of the mouse pointer is useful to point out exactly the value of the point of interest, without the user having to filter a time range from the history.

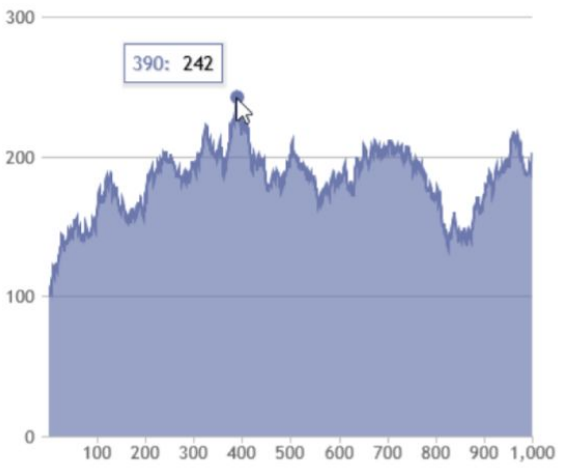
Dataset: Tables.

Interactivity: Display a box with numerical data when the user points with the mouse to a specific point on the graph.

Observations: Useful to almost to every type of graph, such as line, bar, pie, radar, etc.

When to avoid: Must be avoided when the information to be displayed inside the box is too long, covering a large part of the graph when shown.

Illustration:



R6 - Present summary before going deeper

Description: Using a summary view that shows the latest samples (or summarized samples) is important to direct the user to the correct path, avoiding unnecessary steps and, therefore, reducing the number of steps needed to perform a task.

Dataset: Tables, Lists, Flags, Levels (numerical scale).

Interactivity: Does not apply.

Observations: The summarized information to be shown needs to be validated with a key user or with an expert, so that the information shown to the tasks that need to be accomplished.

When to avoid: Must be avoided when it is not possible to show updated enough information (how much updated depends on each case) so as not to cause any false impression and prevent the user from making a wrong decision.

Illustration:

R7 - Dashboard as a starting point on the home screen

Description: Graphs and information organized as soon as the user enters the monitoring tool provide an overview of everything that is happening on the network. Therefore, dashboards are a good starting point to begin analyzing a situation. Elements such as incident counters or problem counters alert the user to take an initiative.

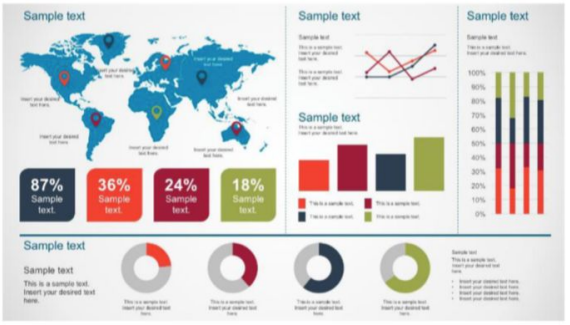
Dataset: Tables, Lists, Flags, Levels (numerical scale).

Interactivity: Does not apply.

Observations: Dashboards must be assembled by the user in order to show what is relevant to him. Dashboard suggestions can be provided by the tool itself, so that the user can make only minor adjustments.

When to avoid: Does not apply.

Illustration:



R10 - Explanatory text for filling in fields

Description: With the help of only a simple label in the fields it is not possible to understand how they should be filled out. Thus, fields that need to be filled out with some specific rule or syntax should contain help to avoid misunderstandings.

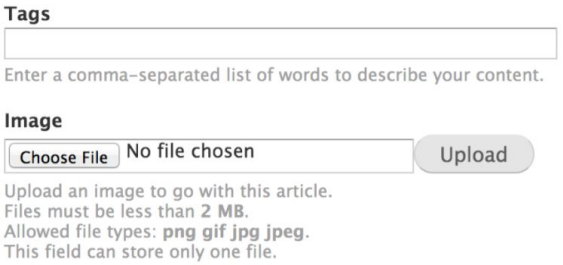
Dataset: Field and value.

Interactivity: Color the field borders red if it is not filled in correctly, for example, in a different format than specified, and specify what is incorrect.

Observations: In addition to the description of how to fill the field, an example of filling can be provided.

When to avoid: Does not apply.

Illustration:



R11 - Display window with additional information

Description: In complex cases, providing the network topology, a list or a dictionary can help the network administrator to understand the information seen on the screen. Content needed to support an analysis, when absent, impairs understanding and decision making. Given the large number of networks and hosts, it is difficult for the administrator to remember all the information, so such content must be visible when necessary.

Dataset: Tables, Lists, Images.

Interactivity: The supporting content must be moved around freely, so the administrator can place that content in the best place for him.

Observations: Supporting content can be anything the user finds useful: a topology, a list of routers or IPs. The user must be able to choose what type of information he wants to appear on the floating window.

When to avoid: Must be avoided when the monitor is too small and the support content covers the entire primary screen of the tool.

Illustration: