

ACC: Cause and symptom events

v1.0

Summary

Currently Zabbix does not have a notion of a hierarchy of events. It is impossible to tell what event caused what.

It is proposed to mark all events as "cause" and "symptom", where one "cause" event may have a number of corresponding "symptom" events. This way we can see clearly what caused what and we can also filter out symptom events to get an uncluttered view of root-cause problems.

Use cases

1. I want to see only root-cause events in Zabbix UI
2. I want to have ability to mark selected events as symptoms manually

Zabbix acceptance

1. Trigger-based events must support one level of hierarchy: "cause" and "symptom"
 - a. One **cause** event can be linked to zero or more **symptom** events
 - b. One **symptom** event can be linked to one **cause** event
2. **Symptom** event is caused by a **cause** event
 - a. For example: **cause** event "Datacenter is on fire" is the reason of thousands of "Host N is unavailable", "Service M is unavailable", etc **symptom** events
3. All new events are considered to be **cause** events (default event rank)
4. MonitoringProblems and Problem widget must support an option ability to display **symptom** events
 - a. all other parts of UI will display information about cause events only
 - i. for example, existing widgets, maps, etc will display information only about **cause** events
5. MonitoringProblems must be extended to:
 - a. mark selected events (source events) as **symptom** and link them to another manually selected event (target event)
 - i. if the target event is a **symptom** event, then the source events will be linked to the **cause** of the target event
 - b. mark selected events as **cause** events
6. Additional User role action "Change problem ranking" must be introduced
 - a. the action must be available for all types of users
7. Configuration of actions must be extended to support new option, which will work similarly to the existing "Pause operations for suppressed problems"
 - a. Pause operations for symptom problems, ON by default
8. New macros {EVENT.SYMPTOMS} and {EVENT.CAUSE.<ACK.STATUS/AGE/NAME/DATE/DURATION/ID/...>} and other similarly to macros {EVENT.*} (except {EVENT.RECOVERY.*}) must be supported for:
 - a. trigger-based notifications and commands
 - b. problem update notifications and commands
 - c. manual event action scripts
9. {EVENT.SYMPTOMS} must be expanded to a list of **symptom** events
 - a. same format as for already supported {SERVICE.ROOTCAUSE}
10. Services will be affected by events of any rank
 - a. change of event rank will not affect services in any way
11. Change of rank must be recorded in the list of problem updates (acknowledges) and displayed similarly to problem suppression
12. Change of rank must not trigger problem update actions
13. Housekeeper must handle removal of information about ranking
14. API must support change of problem ranking
15. No event (regardless of ranking) must be displayed if no permissions

Zabbix UI changes

1. MonitoringProblems

- a. a new filtering option for displaying symptom events, OFF by default
 - i. must be introduced also for Problems widget
 - b. a new compact column and/or a small icon must be introduced to display event rank
 - c. a new column to display number of corresponding symptom events must be introduced
 - i. all **cause** event rows will be expandable to display first 50 corresponding symptom events on mouse click
2. It is extremely important to make all operations with **cause** and **symptom** events super easy. Usability is critical!

The screenshot shows the configuration interface for the MonitoringProblems widget. It includes several sections for filtering and display options:

- Show:** Recent problems (selected), Problems, History
- Host groups:** type here to search [Select]
- Hosts:** type here to search [Select]
- Triggers:** type here to search [Select]
- Problem:** [Text input]
- Severity:** Not classified, Warning, High, Information, Average, Disaster
- Age less than:** [14] days
- Show symptoms:**
- Show suppressed problems:**
- Show unacknowledged only:**
- Host inventory:** Type [dropdown], [Add], [Remove]
- Tags:** And/Or, Or, tag [input] Contains [dropdown] value [input] [Remove], [Add]
- Show tags:** None, 1, 2, 3, Tag name: Full, Shortened, None
- Tag display priority:** comma-separated list [input]
- Show operational data:** None, Separately, With problem name
- Compact view:**
- Show details:**
- Show timeline:**
- Highlight whole row:**

Buttons at the bottom: Update, Apply, Reset.

The screenshot shows the "Update problem" dialog box for the problem: **/: Disk space is critically low (used > 90%)**

Message: [Text area]

History: Table with columns: Time, User, User action, Message

Scope: Only selected problem, Selected and all other problems of related triggers 1 event

Change severity: Not classified, Information, Warning, Average, High, Disaster

Suppress: Indefinitely, Until, now+1m [calendar icon]

Unsuppress:

Acknowledge:

Convert to cause:

Close problem:

* At least one update operation or message must exist.

Buttons at the bottom: Update, Cancel.

	Time	Severity	Recovery time	Status	Info	Host	Problem	Duration	Ack	Actions	Tags
<input type="checkbox"/>	2022-09-09 07:44:56	Warning		PROBLEM		Zabbix server	High swap space usage (less than 50% free)	10d 7h 23m	No		class: os component: memory component: storage ...
<input type="checkbox"/>	2022-09-07 15:26:10	Average		PROBLEM		Apache	Interface eno1: Link down	11d 23h 42m	No		
<input type="checkbox"/>	2022-09-07 15:26:06	Average		PROBLEM		Apache	Service is down	11d 23h 38m	No		
<input type="checkbox"/>	2022-09-07 15:26:06	Average		PROBLEM		Apache	Failed to fetch status page	11d 23h 38m	No		
<input type="checkbox"/>	2022-09-07 15:26:06	Average		PROBLEM		Apache	Service is down	11d 23h 38m	No		
<input type="checkbox"/>	2022-09-07 15:26:06	Average		PROBLEM		Apache	Failed to fetch status page	11d 23h 38m	No		
<input type="checkbox"/>	2022-09-09 07:44:56	Information		PROBLEM		Zabbix server	System name has changed	10d 7h 23m	No		class: os component: memory component: storage ...

Displaying 5 of 5 found

	Time	Severity	Recovery time	Status	Info	Host	Problem	Duration	Ack	Actions	Tags
<input type="checkbox"/>	2022-09-09 07:44:56	Warning		PROBLEM		Zabbix server	High swap space usage (less than 50% free)	11d 4h 53m	No		class: os component: memory component: storage ...
<input type="checkbox"/>	2022-09-07 15:26:10	Average		PROBLEM		Apache	Interface eno1: Link down	11d 23h 42m	No		
<input checked="" type="checkbox"/>	2022-09-07 15:26:06	Average		PROBLEM		Apache	Service is down	11d 23h 38m	No		
<input checked="" type="checkbox"/>	2022-09-07 15:26:06	Average		PROBLEM		Apache	Failed to fetch status page	11d 23h 38m	No		
<input type="checkbox"/>	2022-09-09 07:44:56	Information		PROBLEM		Zabbix server	System name has changed	10d 7h 23m	No		class: os component: memory component: storage ...

2 selected

VIEW

Problems

CONFIGURATION

Trigger

Items

PROBLEM

Mark as cause

Mark selected as symptoms

LINKS

Trigger URL

Displaying 5 of 5 found

Decisions made

1. All new events are considered to be **cause** events
2. Execution of actions for symptom operations can be optionally paused
3. Information about symptom events will not be displayed in Zabbix UI except MonitoringProblems and Problem widget
4. This functionality will not affect real-time export

Open questions

1. Is rank a good term? It does not suggest hierarchy. Perhaps a different name: type, hierarchy, dependency?

Changes log

- N/A