

Zabbix meets Ops / Rundeck



Integrate Zabbix trigger based actions
into a taskrunner like rundeck



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Real world example



Customer ticketsystem uses a “search service”.

When the search service fails:

- Login to server running the search service.
- Remove corrupt indices.
- Rebuild search indices.

We use Zabbix for monitoring the search service :-)

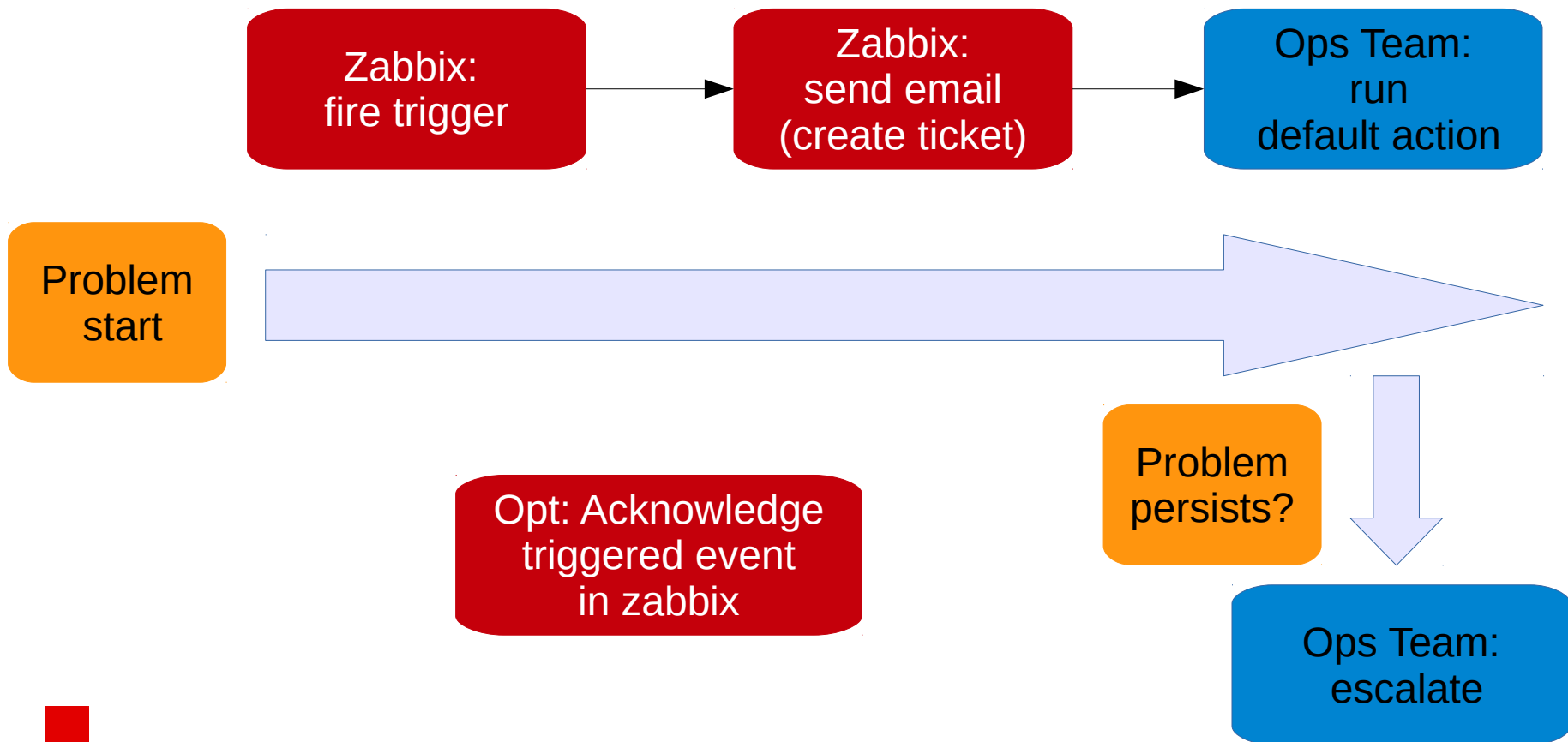


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Typical scenario



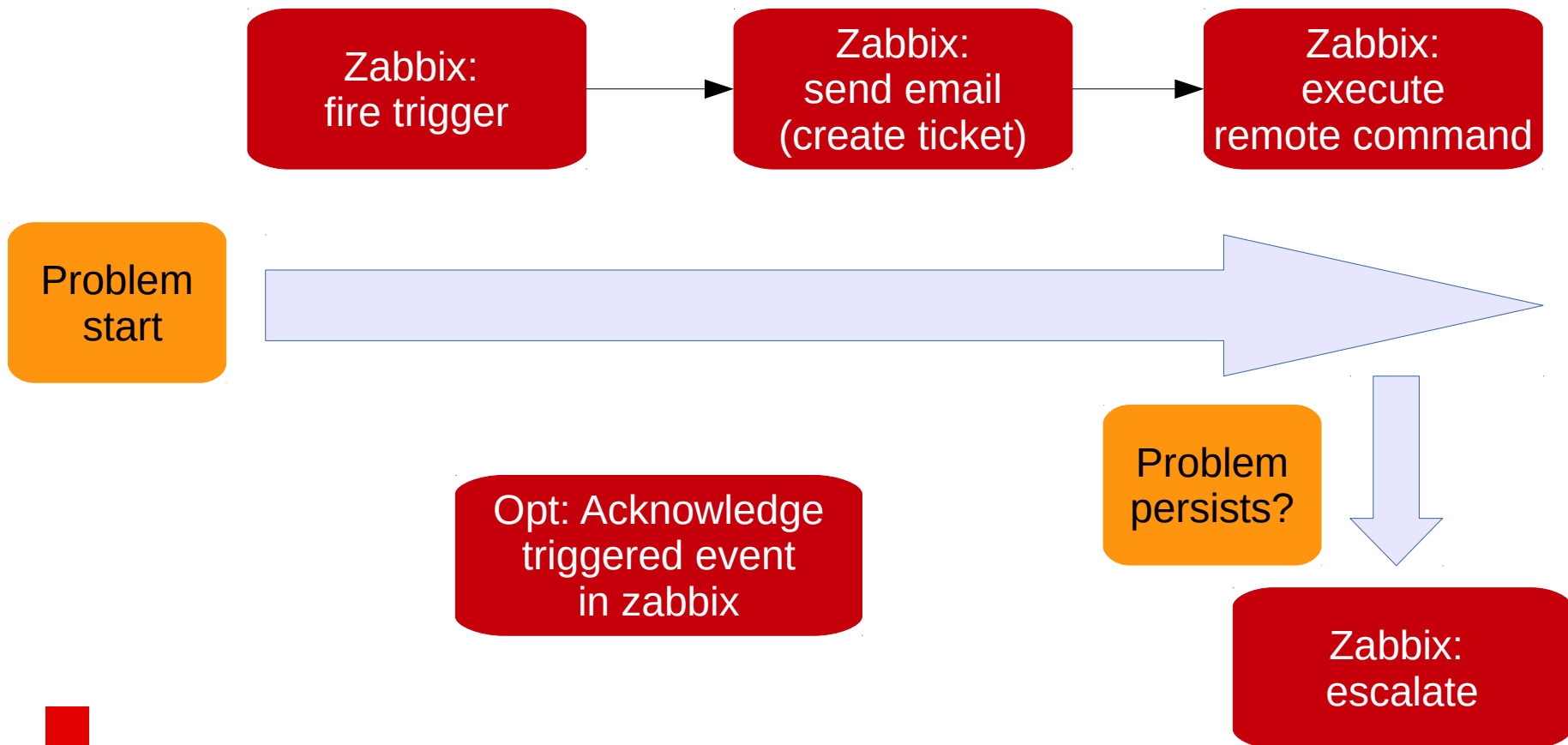
Zabbix alerts



Zabbix meet Ops / Rundeck Advanced Scenario



Zabbix alerts and executes a command



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Reaction on trigger based event



Zabbix action / Ops action

Zabbix:
execute
remote command



Command 1
Command 2
...
Command n

- Commands are similar / identical
- Command execution requires a valid user account on target system

Ops Team:
run
default action



Command 1
Command 2
...
Command n

If default action will not solve the problem, command output from default action would be helpful for further escalation.



Zabbix meet Ops / Rundeck Ops team



Different ways to react:

Non standard tasks - Direct access:



```
Command 1  
Command 2  
...  
Command n
```

Default / frequent tasks - Taskrunner:



Taskrunner



Zabbix meet Ops / Rundeck Advanced Ops team options



What is a taskrunner?



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What is a taskrunner



- Executes commands on remote hosts.
- Defines jobs as a reusable sequences of commands.
- Provides central storage of credentials / keys.
- Preserves output from executed commands.
- Maintains a history of job executions.
- Separates access to job executions from direct access to remote hosts.



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What is a taskrunner



Executing a task through
“Rundeck”
(<http://rundeck.org>)



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Taskrunner Rundeck – Job definition



Rebuild ticketsystem search indices ☰ Action ▾

Ticketsystem uses elastic search. Sometimes internal marvel indices lead to failure. [More ▾](#)
To fix this, those indices must be removed and the ticketsystem indice must be rebuilt.

Prepare and Run...

Definition

Steps:

1. `sudo /etc/init.d/elasticsearch stop`
[Stop elasticsearch service](#)
2. `sudo rm -r /var/lib/elasticsearch/elasticsearch/nodes/0/indices/.marvel-2*`
[Remove marvel indices](#)
3. `sudo /etc/init.d/elasticsearch start`
[Start elasticsearch service](#)
4. `sudo -u www-data php /var/www/html/isc/console.php index:rebuild`
[Rebuild search index in ticketsystem](#)

If a step fails: Stop at the failed step.

Strategy: Execute all steps on a node before proceeding to the next node.

Nodes: Include nodes matching: →

Execute on up to 1 Node at a time.

If a node fails: Continue running on any remaining nodes before failing the step.

Sort nodes by name in ascending order.

Node selection: Target nodes are selected by default



Zabbix meet Ops / Rundeck Taskrunner Rundeck – Job result



Succeeded after 1m 49s at Tue 7:14 pm started at Tue 7:12 pm by zabbix ⌚ 0.01:49

Summary **Report** Log Output Definition

Node Summary

| COMPLETE ? | FAILED ? | INCOMPLETE ? | NOT STARTED ? |
|-------------|----------|--------------|---------------|
| 100% 1/1 | 0 | 0 | 0 |

| Node | | Start time | Duration |
|---|--------------|------------|----------|
| ▼ iscsrv | All Steps OK | | 0.01:49 |
| > Stop elasticsearch service | OK | 7:12:50 pm | 0.00:02 |
| > Remove marvel indices | OK | 7:12:52 pm | 0.00:01 |
| > Start elasticsearch service | OK | 7:12:54 pm | 0.00:01 |
| > Rebuild search index in ticketsystem | OK | 7:12:55 pm | 0.01:43 |



Zabbix meet Ops / Rundeck Taskrunner Rundeck – Log output



Succeeded after 1m 49s at Tue 7:14 pm started at Tue 7:12 pm by zabbix ⌚ 0.01:49

Summary

Report

Log Output

Definition

[View Options](#) >

| | | | |
|----------|--------|---|---|
| 19:12:52 | isctsv | 1. Stop elasticsearch service | * Stopping Elasticsearch Server ...done. |
| 19:12:52 | | | |
| 19:12:55 | | 3. Start elasticsearch service | * Starting Elasticsearch Server ...done. |
| 19:12:55 | | | |
| 19:12:56 | | 4. Rebuild search index in ticketsystem | Started rebuilding index... |
| 19:13:28 | | | PHP Warning: Illegal string offset 'data' in |
| 19:13:28 | | | PHP Warning: Illegal string offset 'name' in |
| 19:13:28 | | | PHP Warning: Illegal string offset 'fileId' i |
| 19:14:38 | | | Indexation |
| 19:14:38 | | | wiki page: 81 |
| 19:14:38 | | | forum post: 0 |
| 19:14:38 | | | forum: 0 |
| 19:14:38 | | | blog post: 0 |
| 19:14:38 | | | article: 0 |
| 19:14:38 | | | file: 7 |
| 19:14:38 | | | file gallery: 4 |
| 19:14:38 | | | trackeritem: 1070 |



Zabbix meet Ops / Rundeck Taskrunner Rundeck – Job activity



Activity for this Job

🕒 running

🕒 recent

⊖ failed

👤 by you

| | | |
|--------|---------------------------|-----------|
| ✅ #263 | 8/23/16 7:14 pm in 1m 49s | by zabbix |
| ✅ #262 | 8/23/16 7:07 pm in 1m 49s | by zabbix |
| ✅ #261 | 8/23/16 7:01 pm in 1m 37s | by zabbix |
| ❌ #260 | 8/23/16 6:58 pm in 3s | by zabbix |

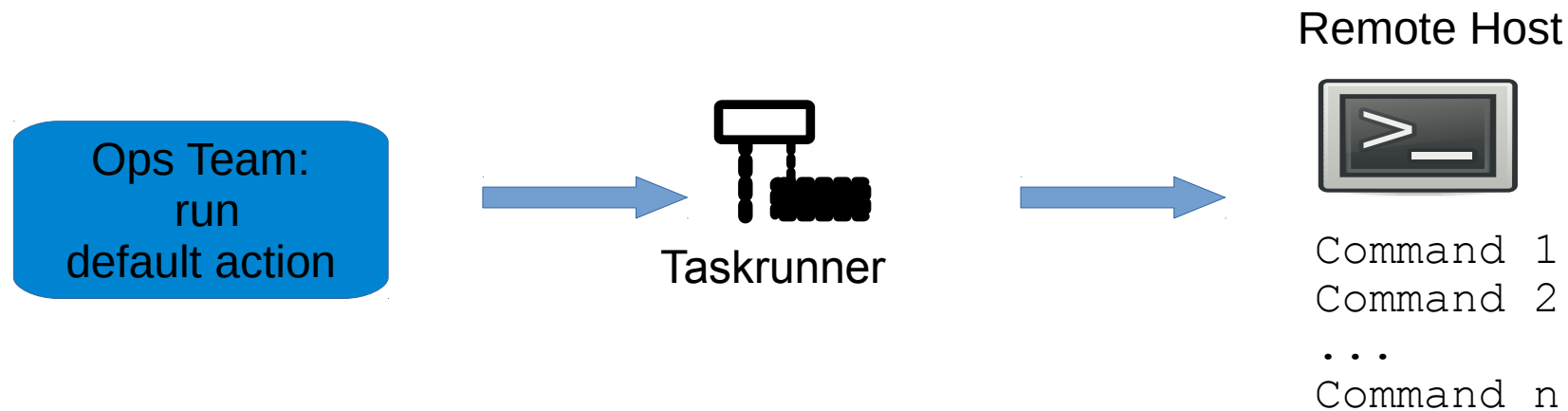
- Execution Id
- Date, Duration
- Who executed
- Command output available



Zabbix meet Ops / Rundeck Execute via taskrunner



Execute job through taskrunner by Ops



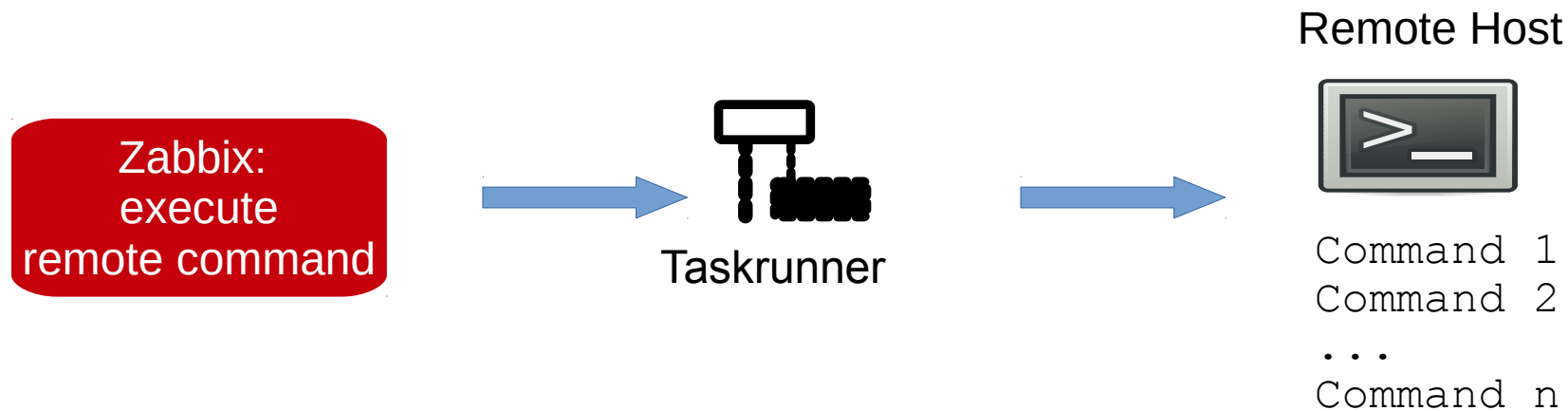
- Ops Team selects host on taskrunner.
- Ops Team selects job on taskrunner.
- Ops Team executes job on taskrunner.
- Taskrunner executes pre defined set of commands against target host(s).
- Taskrunner preserves result state and output of executed commands.



Zabbix meet Ops / Rundeck Execute via taskrunner



Execute job through taskrunner by Zabbix



- **Zabbix** selects host on taskrunner.
- **Zabbix** selects job on taskrunner.
- **Zabbix** executes job through taskrunner.
- Taskrunner executes pre defined set of commands against target host(s).
- Taskrunner preserves result state and output of executed commands.



Zabbix meet Ops / Rundeck Integration Zabbix - Rundeck



Integration Zabbix <-> Rundeck



Zabbix meet Ops / Rundeck Integration Zabbix - Rundeck



Advantages

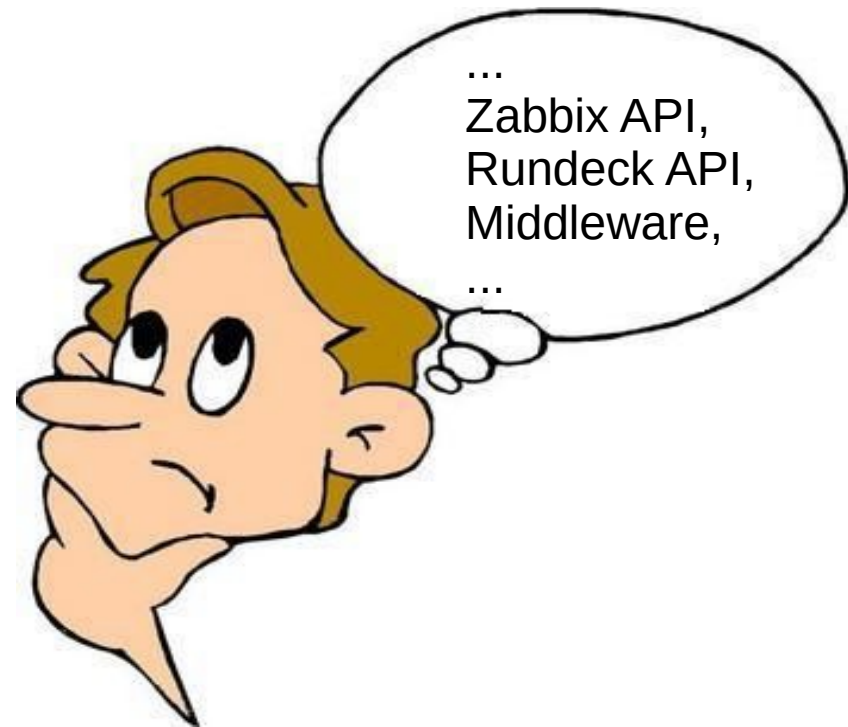
- ✓ Soft migration from standard Ops actions to Zabbix remote commands.
- ✓ Easier overall maintenance of actions, no duplicated sets of commands.
- ✓ Less error prone definition of remote commands.
- ✓ Easier testing of Zabbix remote commands.
- ✓ Preserved output from executed remote actions.
- ✓ Central location for access credentials and keys.



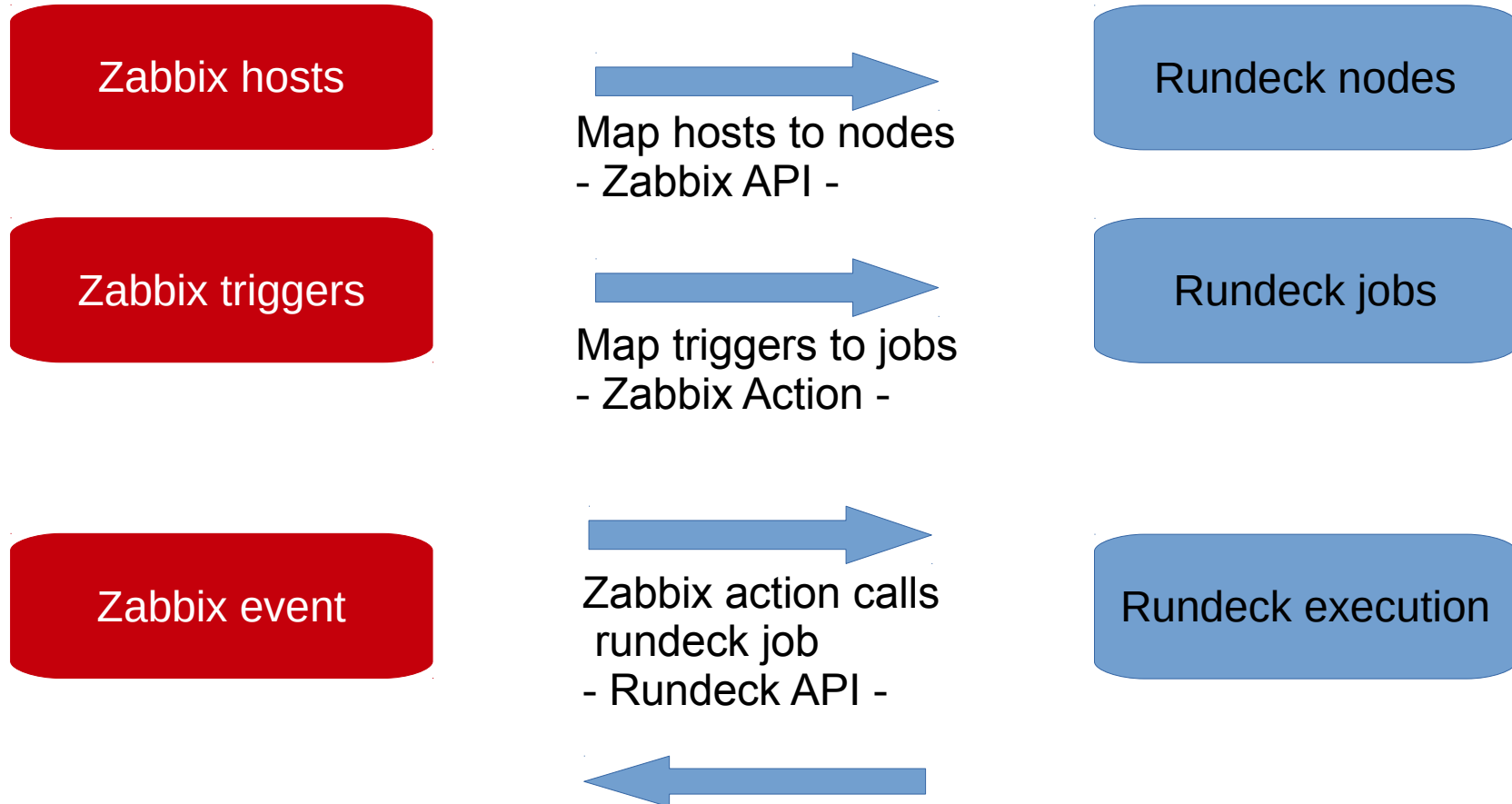
Zabbix meet Ops / Rundeck Integration Zabbix - Rundeck Requirements



- Map Zabbix host to Rundeck nodes.
- Map Zabbix trigger names to Rundeck job names.
- On trigger event, pass related host and trigger from Zabbix to Rundeck.
- Bonus: Return job execution status from Rundeck as an event acknowledgment in Zabbix.



Zabbix meet Ops / Rundeck Integration Zabbix - Rundeck



Zabbix meet Ops / Rundeck Integration Zabbix - Rundeck



Hosts and Hostgroups Integration



Zabbix meet Ops / Rundeck

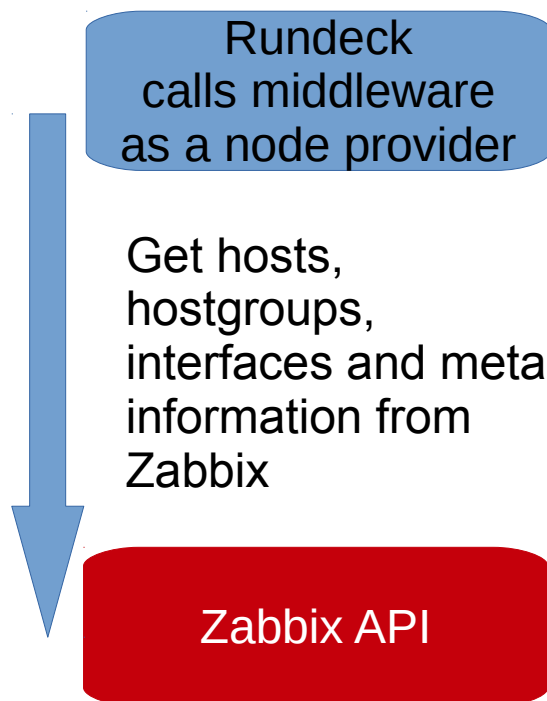
Integration Zabbix – Rundeck: Hosts



Zabbix as node(host) provider for Rundeck

Script Run a script to produce resource model data

Resource Format: `resourcejson` Script File Path: `/var/rundeck/tools/gethosts.php` Interpreter: `/usr/bin/php`



```
{
  "nodename": "iscsrv",
  "hostname": "172.20.20.21",
  "username": "serveradmin",
  "tags": "Isc Hosts,PP Servers",
  "editUrl": "http://172.20.20.161/
    /zabbix//hosts.php?form
    =update&hostid=10106",
  "description": "Isc Support Server",
  "osName": "Linux",
  "osFamily": "unix",
  "contact": "Wolfgang Alper",
  "location": "RZ Bielefeld Rack2"
}
```



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Trigger and Action Integration

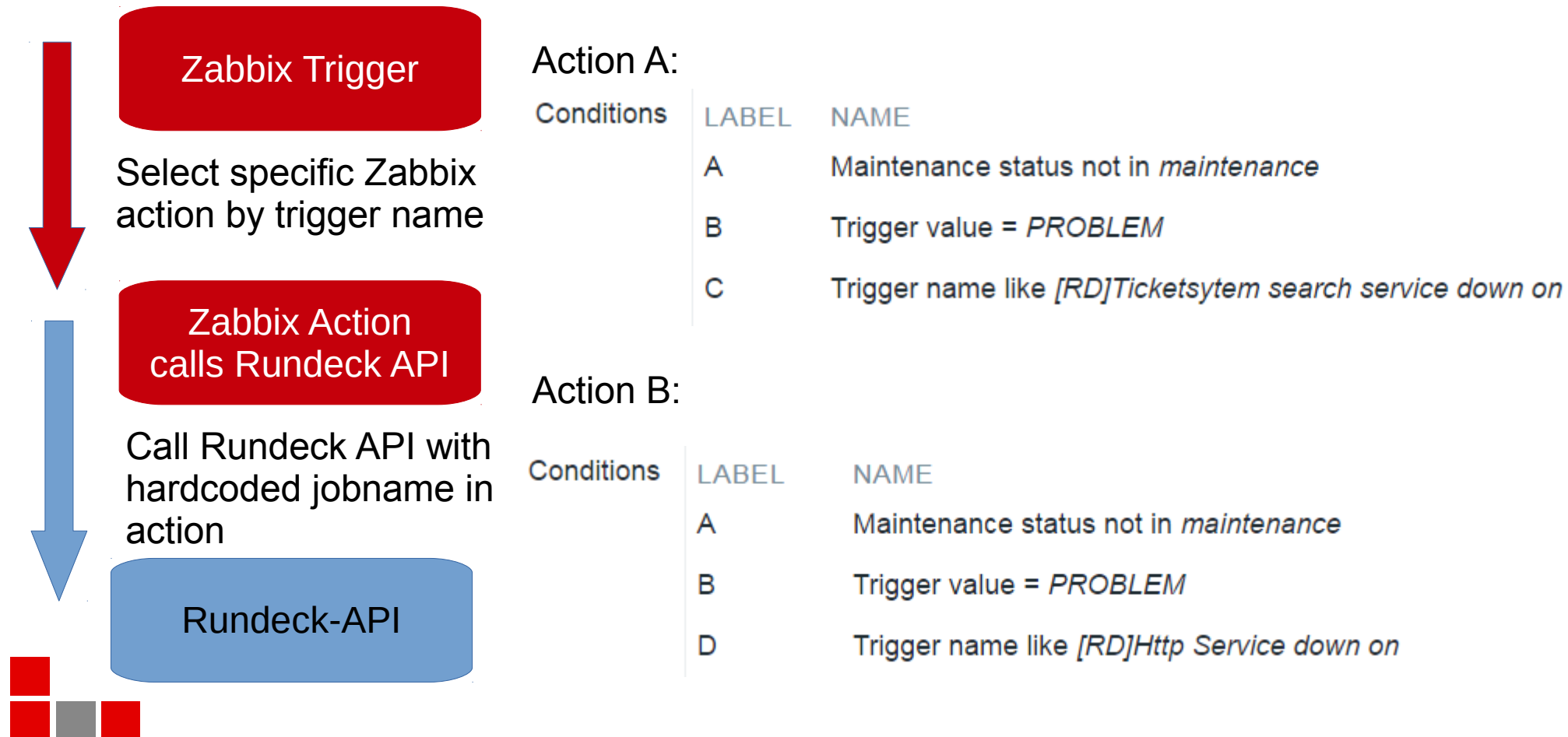


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Integration Zabbix – Rundeck: Trigger



Execute Rundeck job from Zabbix - simple

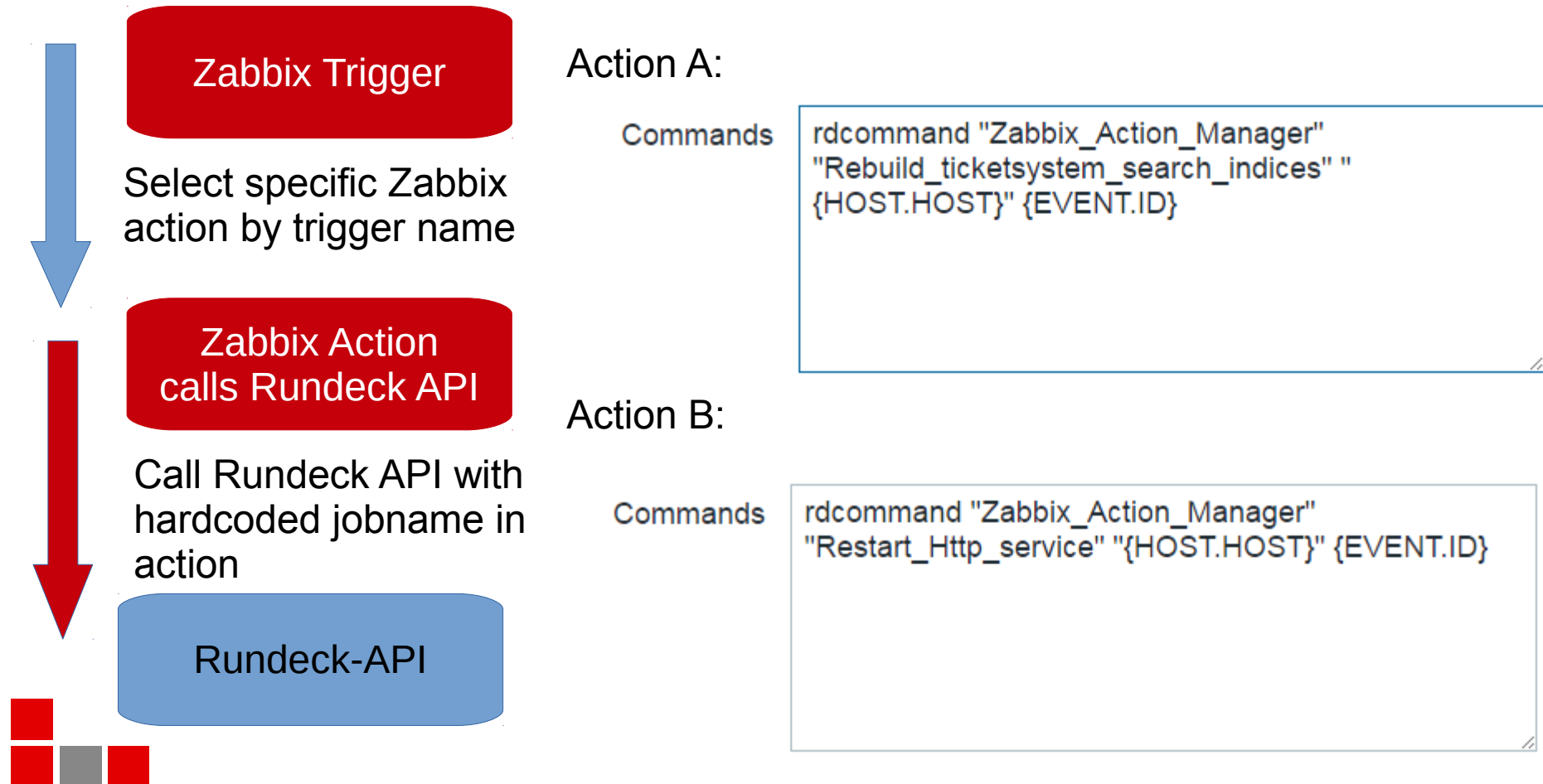


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Integration Zabbix – Rundeck: Trigger

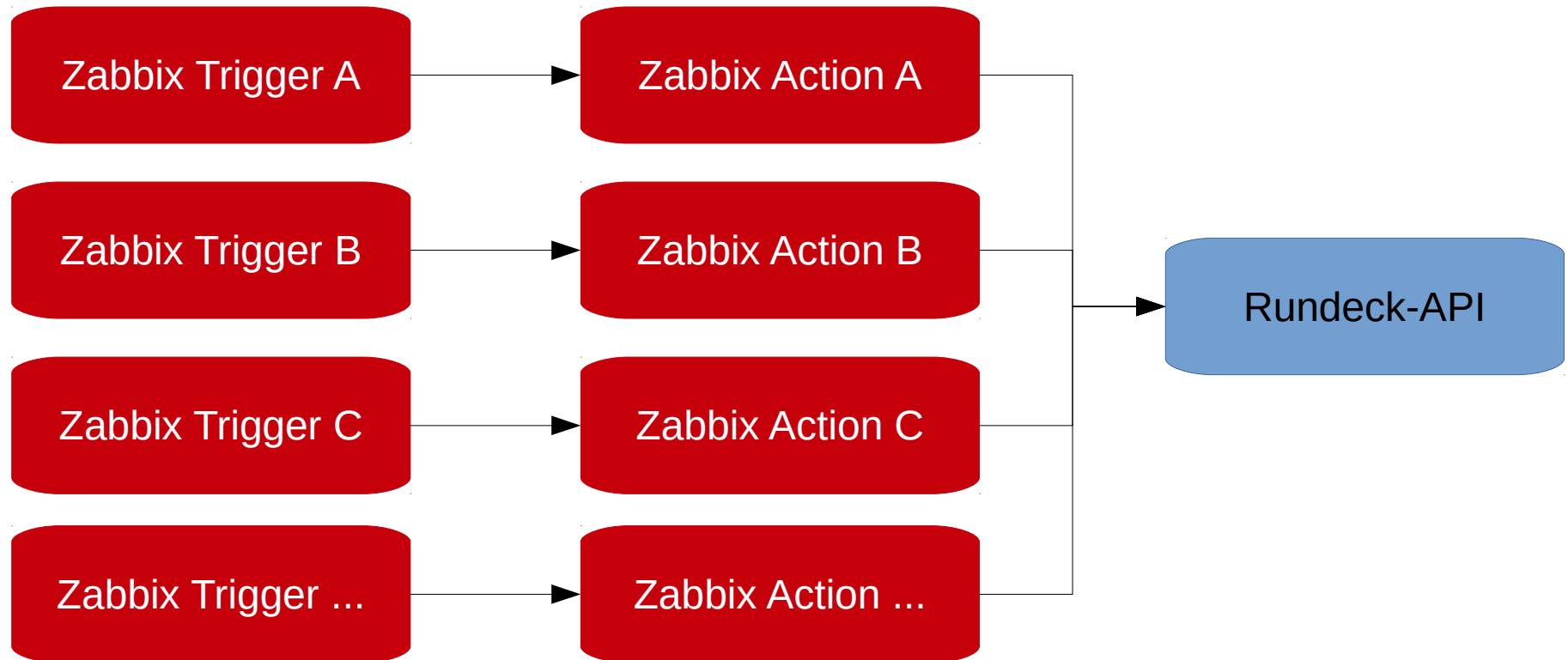


Execute Rundeck job from Zabbix - simple



Zabbix meet Ops / Rundeck

Integration Zabbix – Rundeck: Trigger



Simple implementation



Each trigger requires its own Zabbix action



Zabbix meet Ops / Rundeck Integration Zabbix - Rundeck



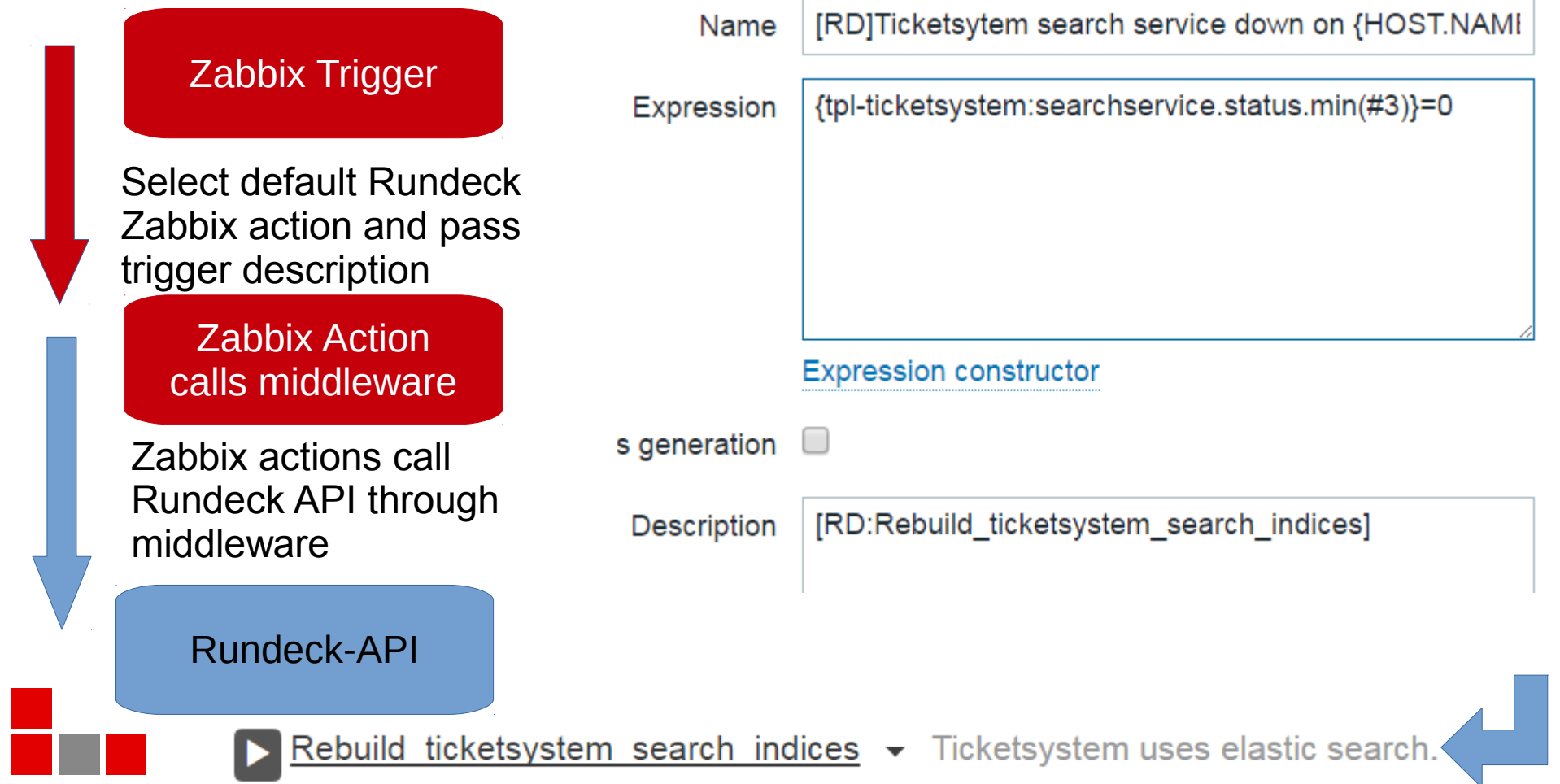
Trigger and Action Integration
We can do better ;-)



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Integration Zabbix – Rundeck: Trigger

Execute Rundeck job from Zabbix - advanced

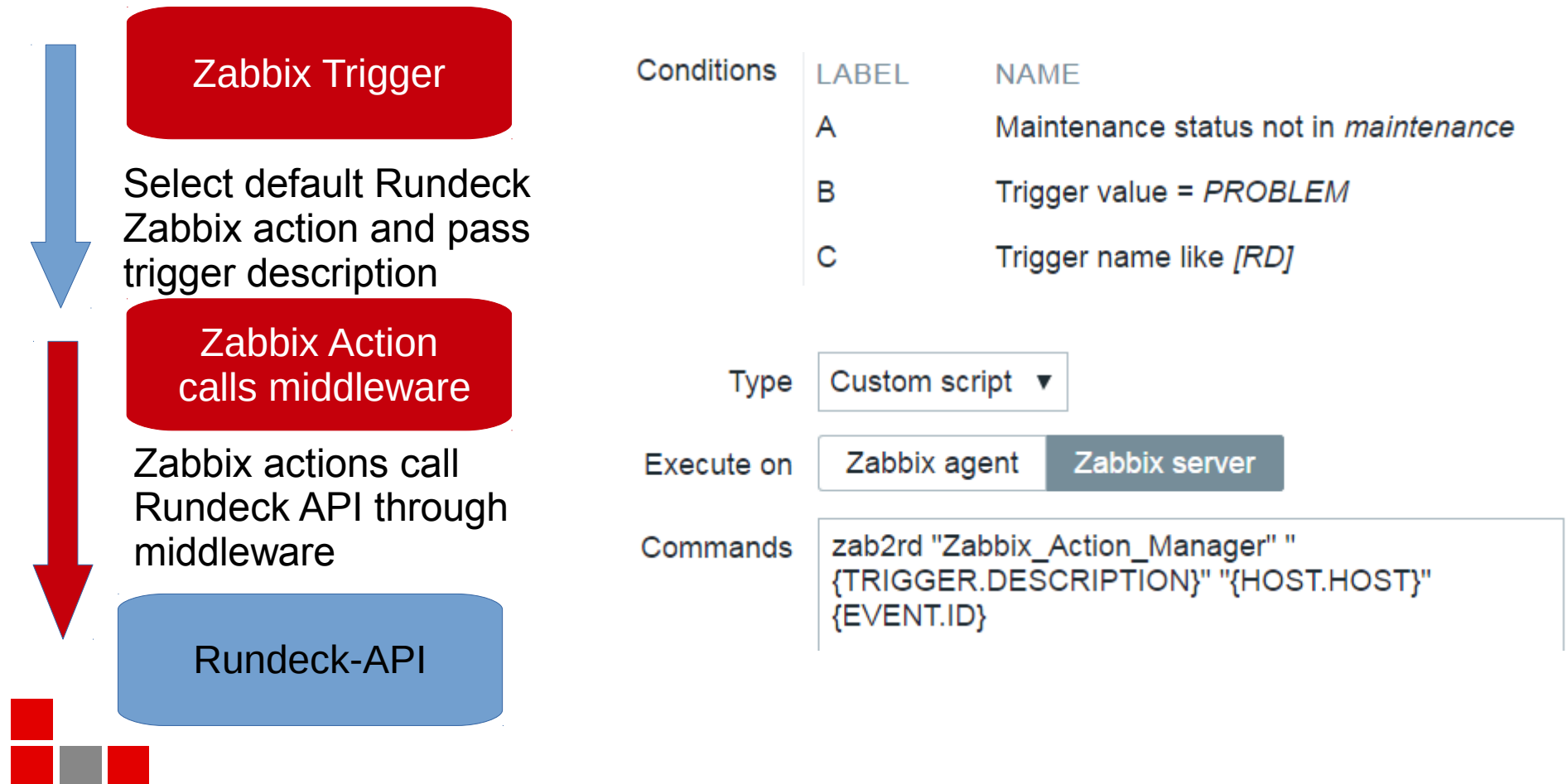


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Integration Zabbix – Rundeck: Trigger

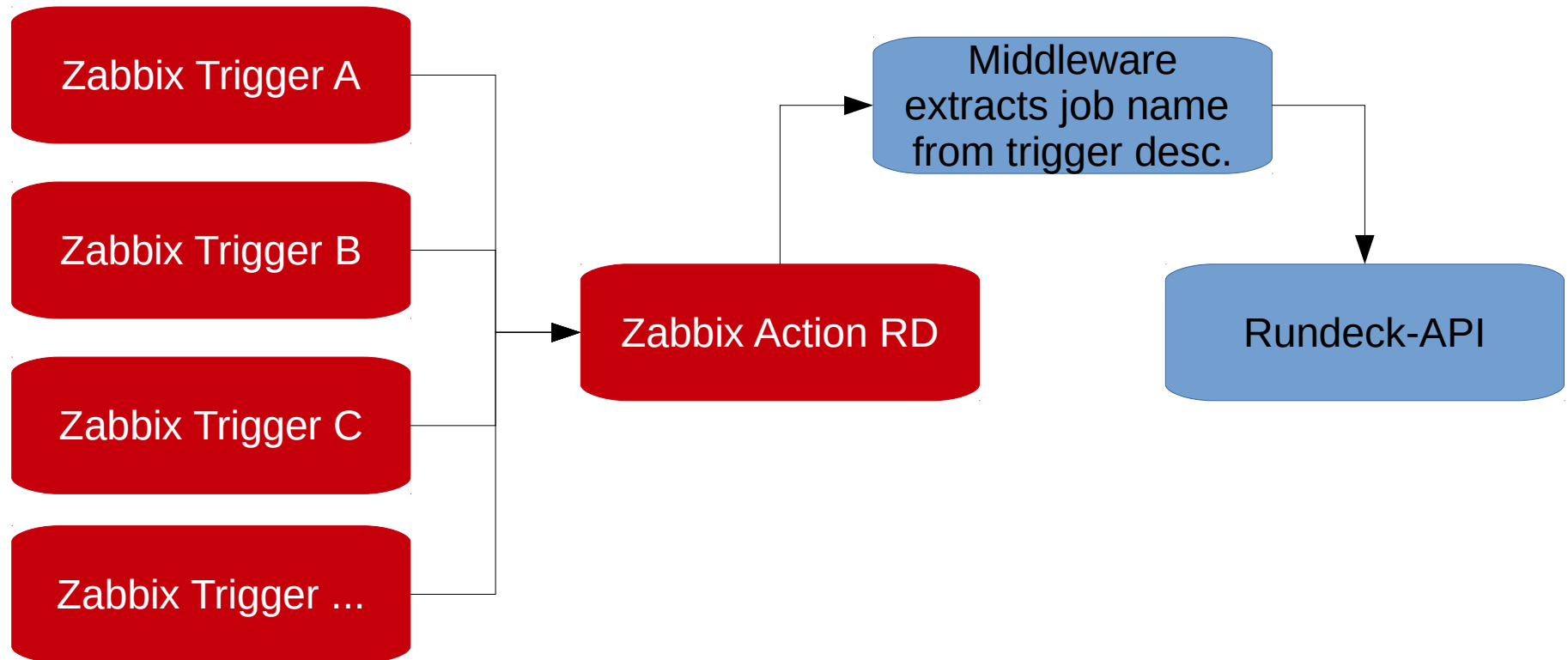


Execute Rundeck job from Zabbix - advanced



Zabbix meet Ops / Rundeck

Integration Zabbix – Rundeck: Trigger



✓ All trigger share one Zabbix action



Zabbix meet Ops / Rundeck Integration Zabbix – Rundeck



Summary

To execute a rundeck job form a zabbix trigger event:

- Add “[RD]” to trigger name (optional).
- Add “[RD:<Rundeck-Job-Name>]” to trigger description.
- Done :-)



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Bonus:
**Automatic acknowledgment
through executed tasks**



Zabbix meet Ops / Rundeck

Automatic acknowledgment



To consider

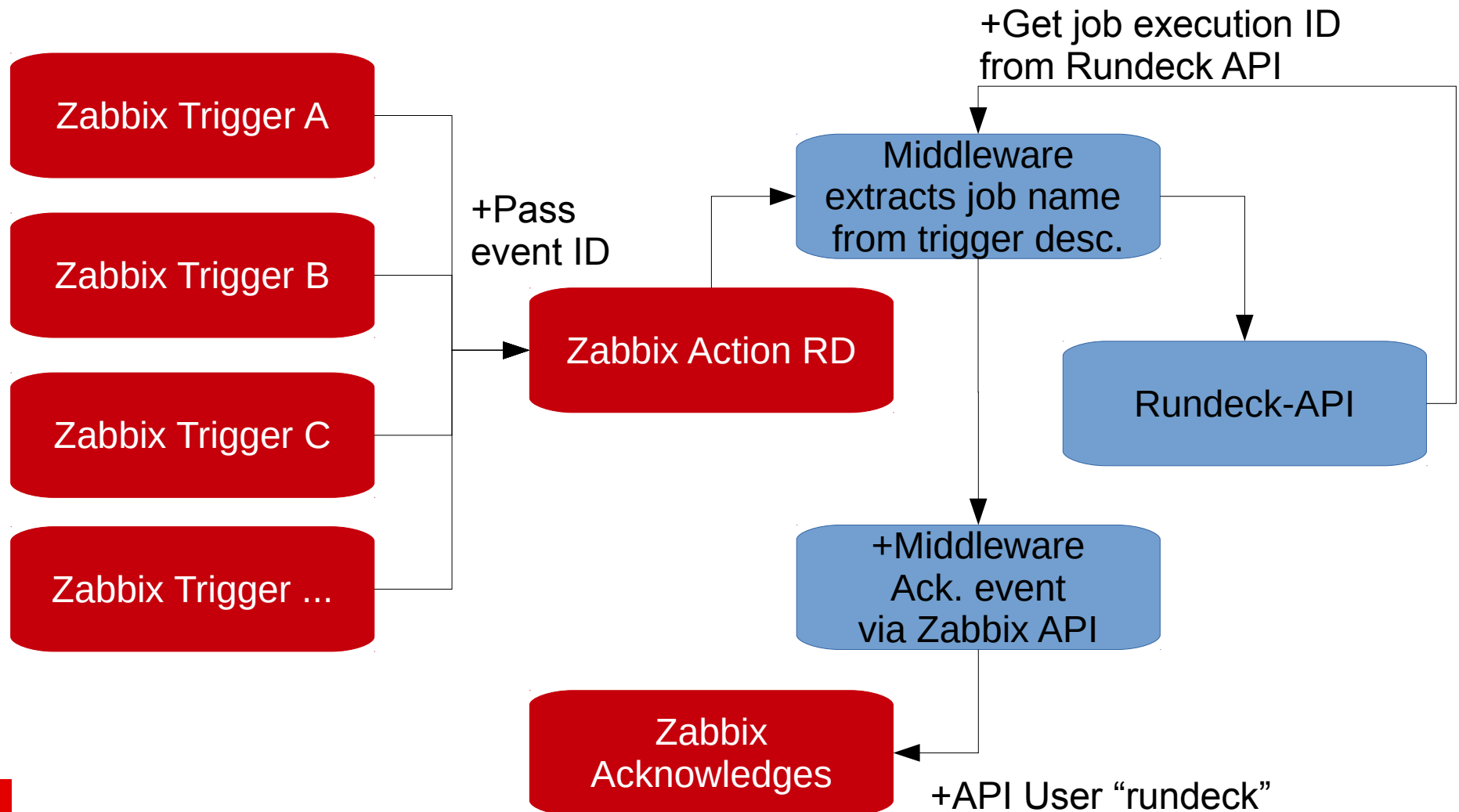
- Remote actions can take longer than a few seconds, however Ops team should “see” that there is a remote action and the initial state.
- Ops Team should “see” the current execution ID of the job or get a http link to it.
- Zabbix event should show the acknowledge as the user “rundeck”.

Overall – Acknowledgment from Rundeck jobs give more transparency of what is going on.



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Automatic acknowledgment - Design



Zabbix meet Ops / Rundeck Automatic acknowledgment - Result



Zabbix Event:

[\[RD\]Ticketsystem search service down on iscsrv](#)

PROBLEM

High

7m 54s

Yes 1

1

Zabbix event info: Remote action

Command actions



| STEP | TIME | STATUS | COMMAND | ERROR |
|------|------------------------|----------|--|-------|
| 1 | 2016-08-21 23:18:26 | Executed | :zab2rd "Zabbix_Action_Manager" [RD:Rebuild_ticketsystem_search_indices]" "iscsrv" 1354 | |

Zabbix event info: Acknowledgment info with link to rundeck job execution

Acknowledges



| TIME | USER | MESSAGE |
|------------------------|----------------------|---|
| 2016-08-21 23:18:26 | rundeck (Rundeck) | Rundeck-Execution id:253, status:succeeded, host:iscsrv, job:Rebuild_ticketsystem_search_indices, project:Zabbix_Action_Manager Info: http://172.20.20.80:4440/project/Zabbix_Action_Manager/execution/show/253 |



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Thank You!



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