The Clever and the Cool

Zabbix meets IBM Netcool

IntelliTrend IT-Services GmbH

Otto-Brenner-Strasse 119

D-33607 Bielefeld, Germany

Contact: Wolfgang Alper

wolfgang.alper@intellitrend.de

www.intellitrend.de

The Clever and the Cool

Zabbix meets IBM Netcool

With special thanks to

Deutsche Telekom Technik GmbH

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The Clever and the Cool
Lets start simple

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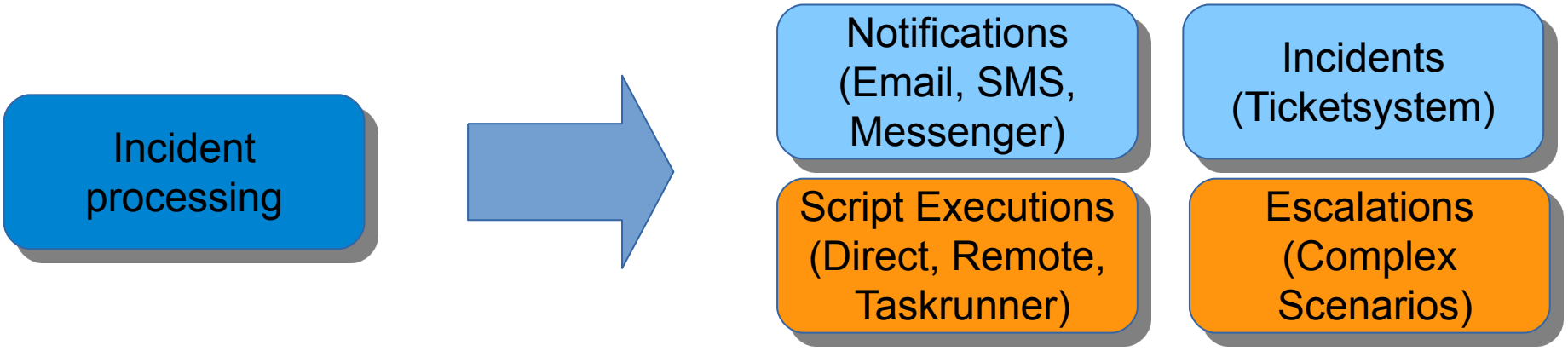
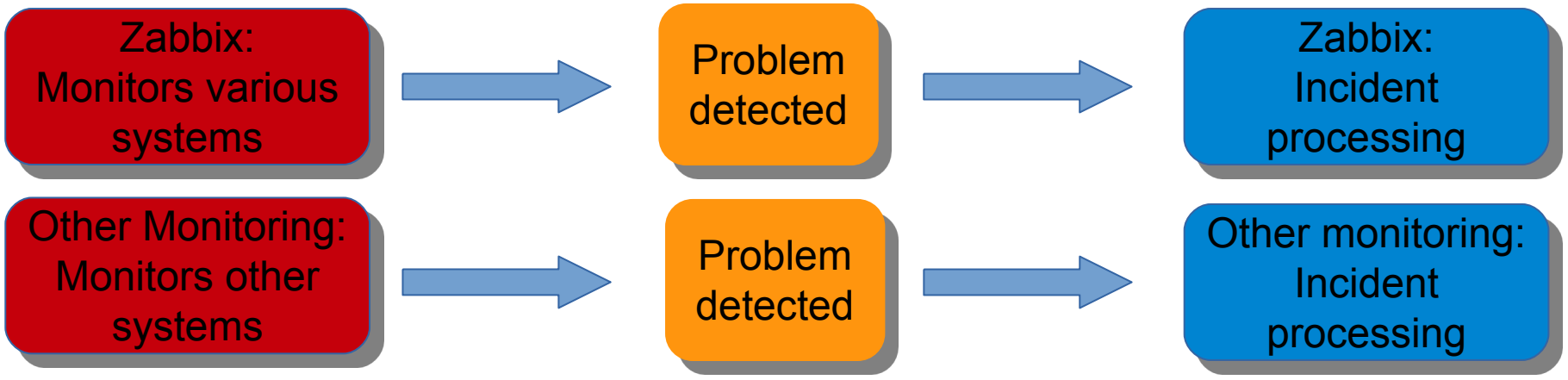
Incident processing



The Clever and the Cool
Different monitoring systems



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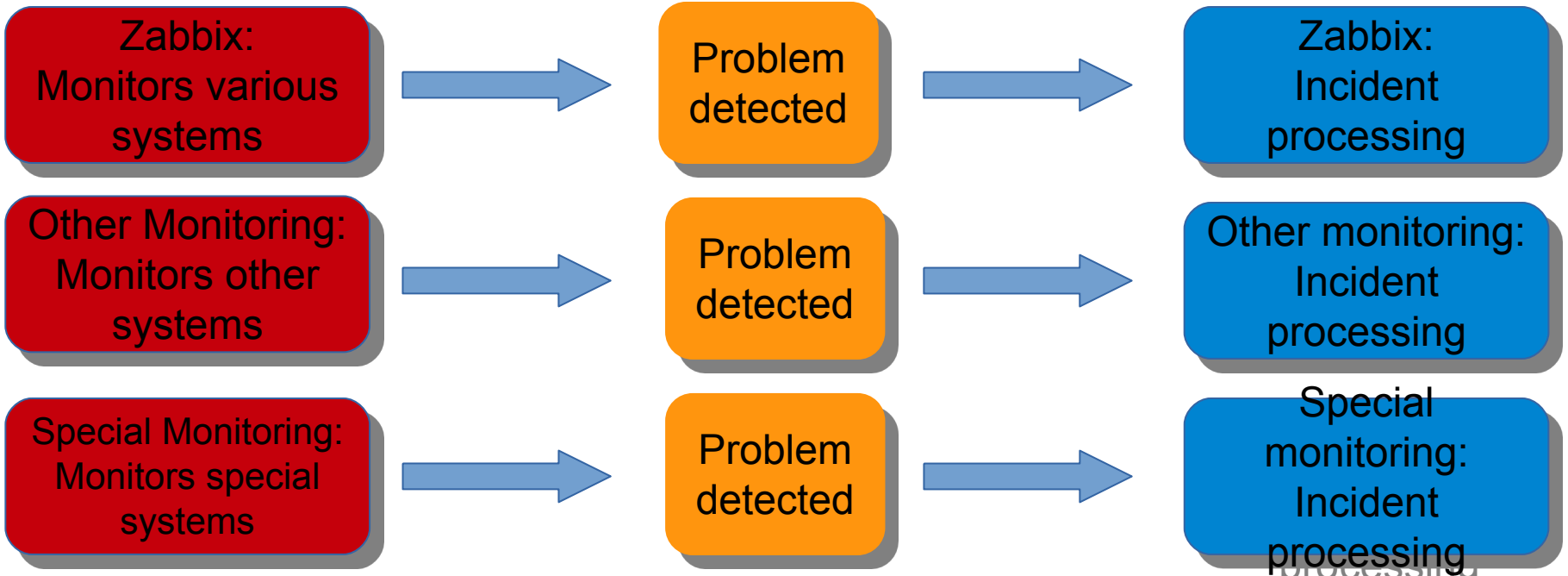
And even more ...



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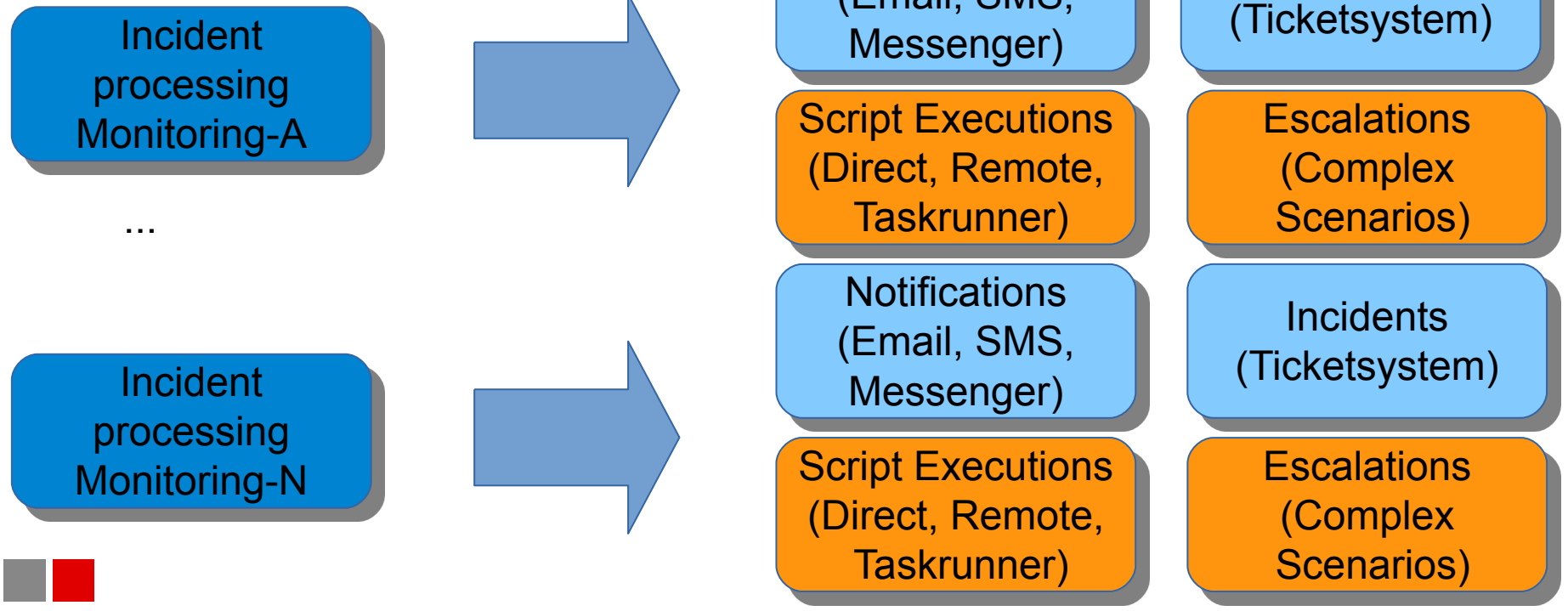
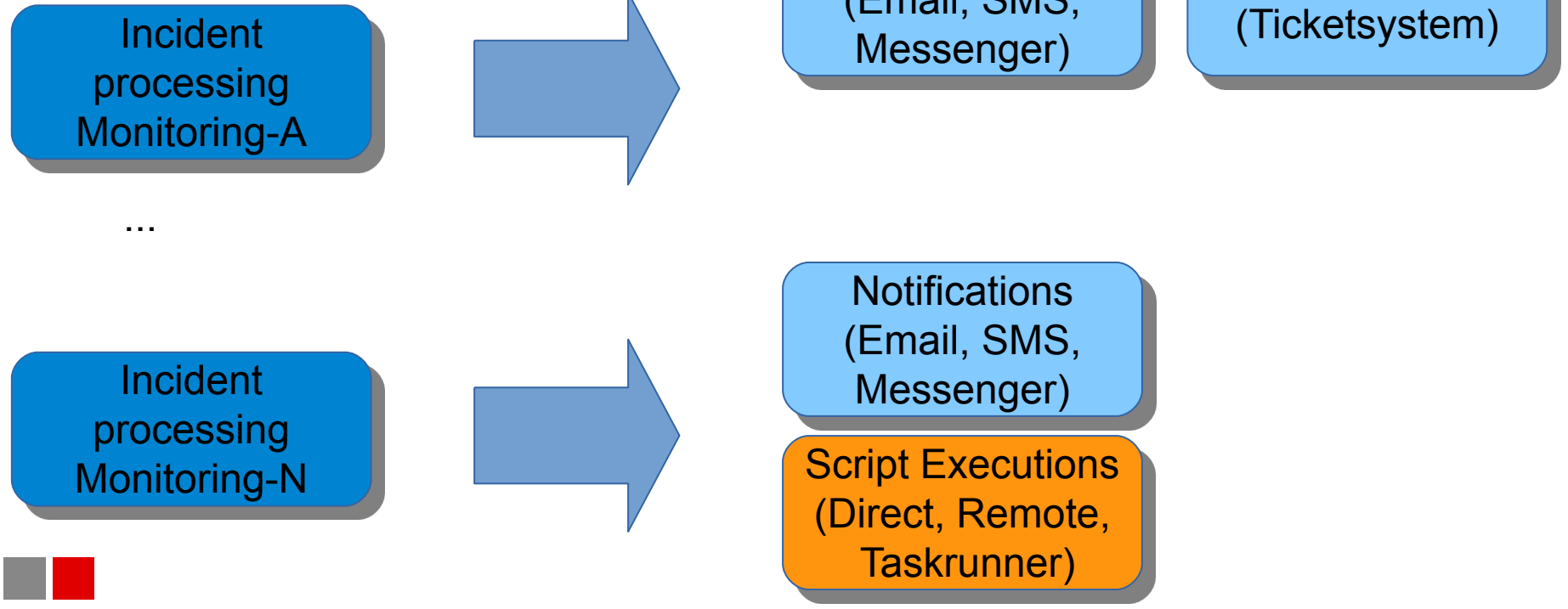
Incident processing



The Clever and the Cool Incident processing



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Incident processing management

How to manage incident processing across different monitoring systems?

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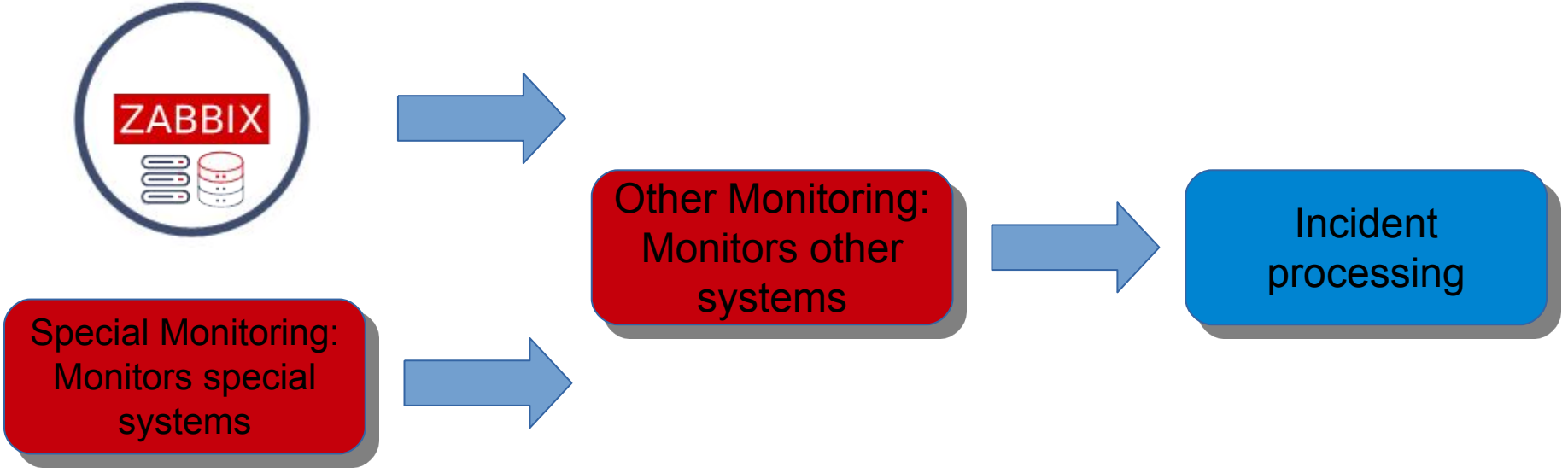
Incident processing management



Option: Forward to existing monitoring system

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Incident processing management

Option: Forward to Zabbix

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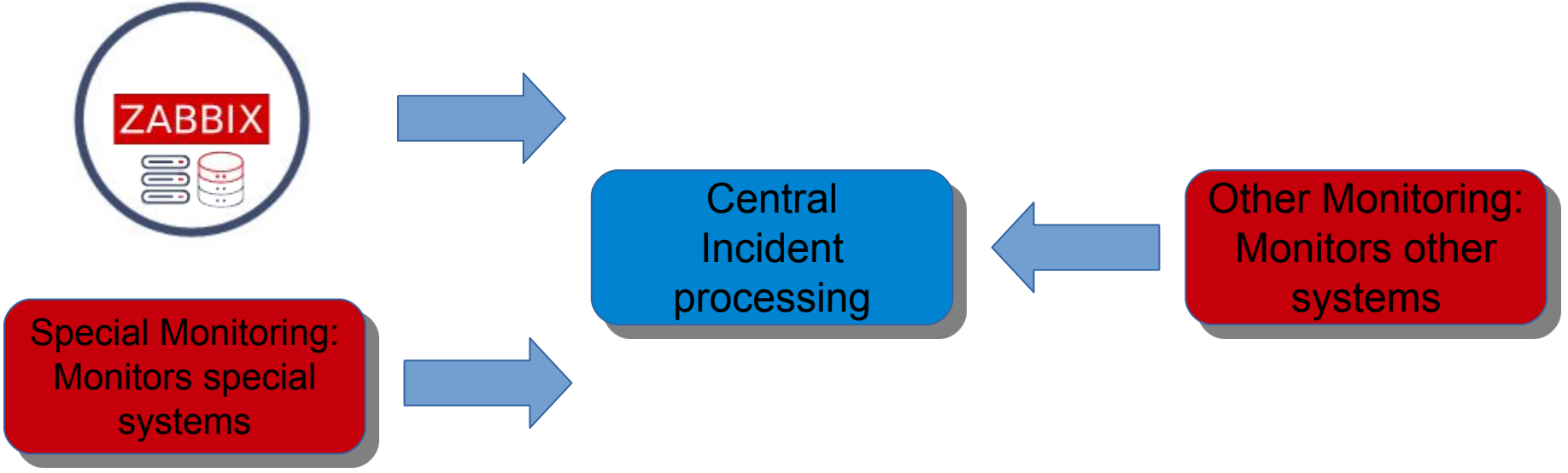
Incident processing management



Option: Forward to central incident processing

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Incident processing management

Having more than one Zabbix Server?

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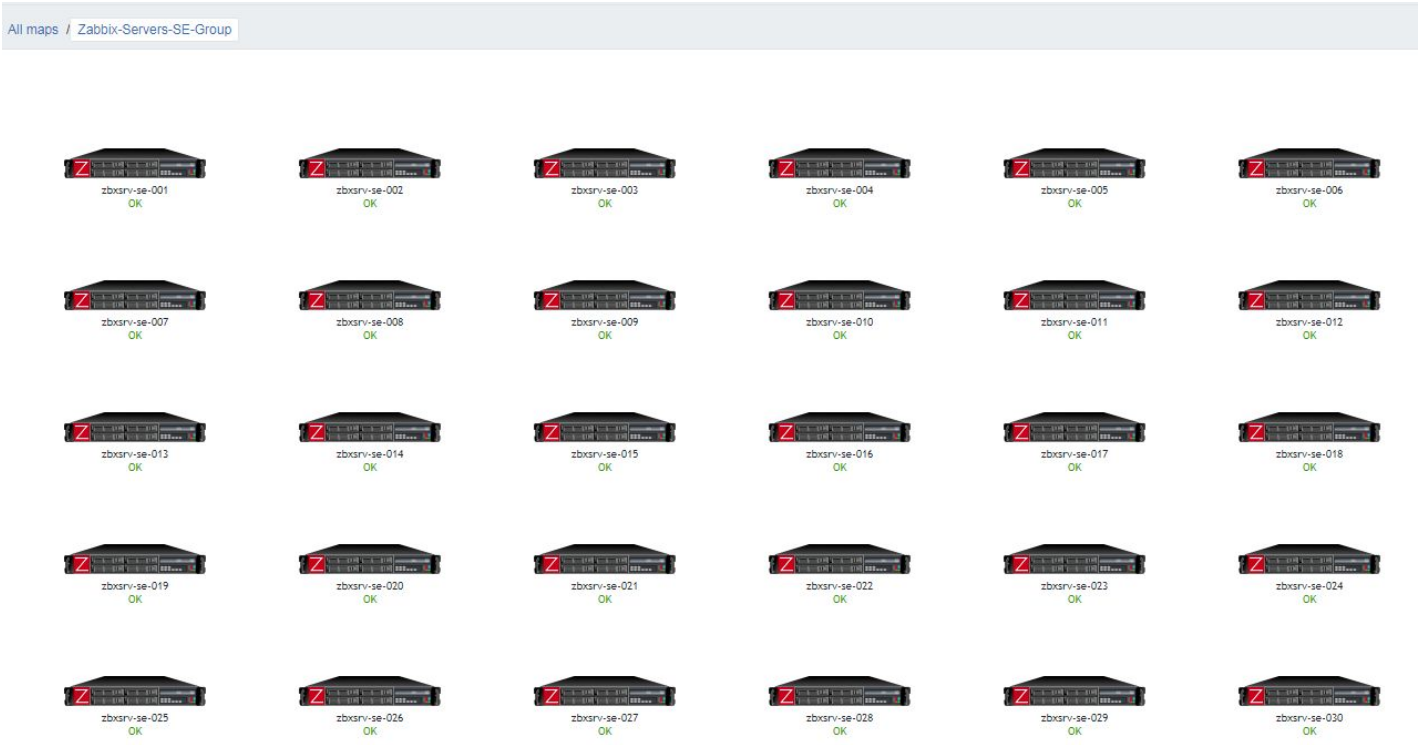
Adding more Zabbix Systems



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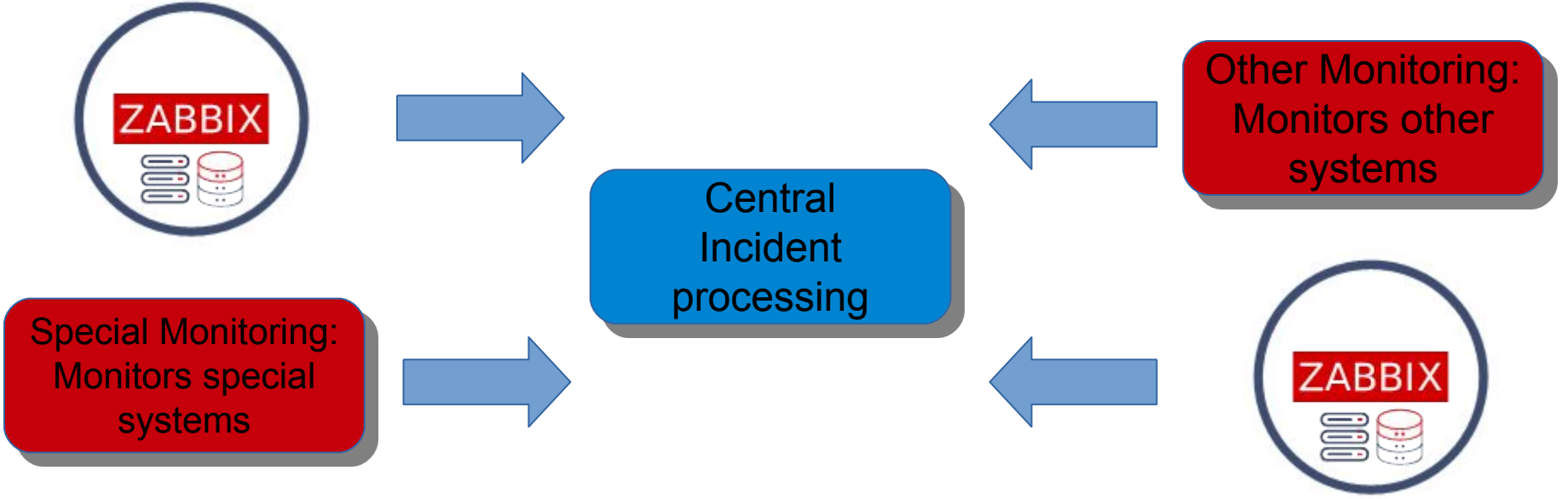
Incident processing management



Option: Forward to central incident processing

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Central incident processing

How to integrate with a central incident processing system?

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Central incident processing

Use SNMP Traps!
(Simple Network Management Protocol)

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Central incident processing

Why SNMP Traps instead of custom API programming?

SNMP Traps are:

- …specifically designed to monitor network components.
- ...defined by official RFC's.
- ...provide authentication and encryption.
- ...supported by many vendors.

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Central incident processing

SNMP

- Must use polling.
- Query a system for one or more metrics.
- No other software needed.

SNMP Traps

- Event driven.
- Ask a device to send a message when an event happens.
- Requires a SNMP Trap receiver.

SNMP vs. SNMP Traps

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Design and Implementation

Integration Zabbix

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IBM Netcool

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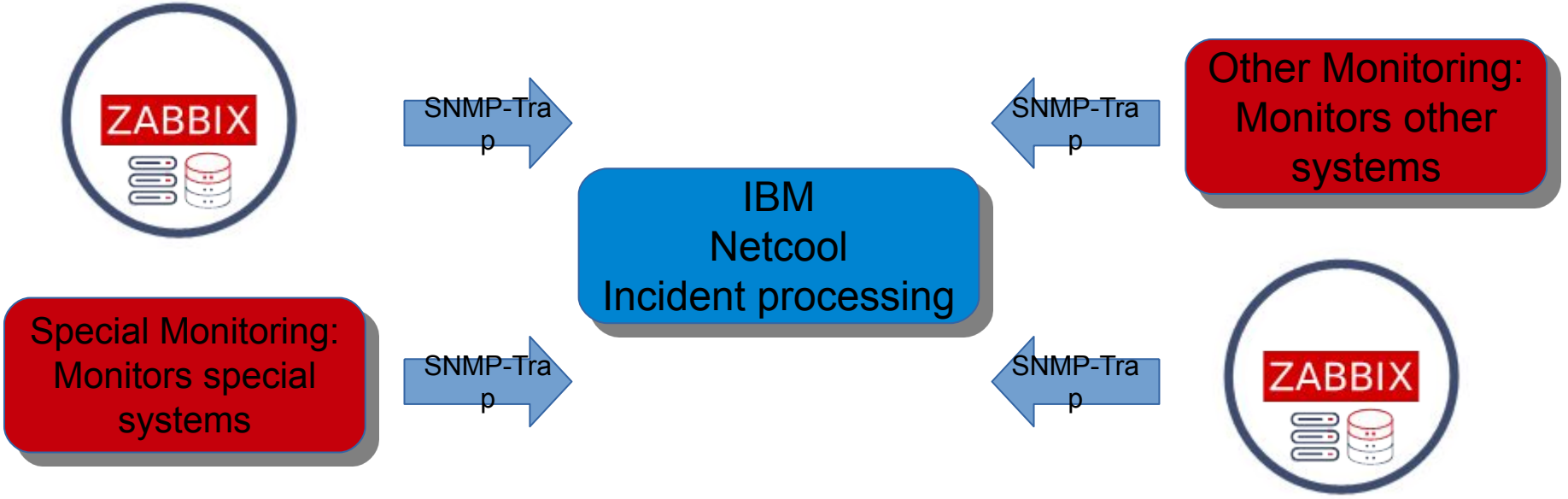
Design and Implementation



All involved monitoring systems send their alerts via SNMP Traps

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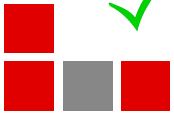
Design and Implementation

Advantages

- ✓ Easy integration into existing incident and escalation management.
- ✓ Scaleability, not limited to a single Zabbix instance.
- ✓ Easy configuration of problems that must be visible in IBM Netcool.
- ✓ Automatic central monitoring of availability of Zabbix Servers.
- ✓ Reusing existing infrastructure.
- ✓ Well defined interface on the IBM Netcool part.



Design Considerations

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Design and Implementation

- Pass unique Zabbix instance names to Netcool.
- Pass hostname to Netcool.
- Pass trigger identifier and trigger severity to NetCool.
- Pass Zabbix eventid to Netcool on entering “problem” state.
- Pass Zabbix eventid to Netcool on entering “ok” state to clear.
- Control which events should be passed to Netcool.
- Implement heartbeat so Netcool can monitor the middleware.
- Implement the communication based on SNMP v3 Traps.

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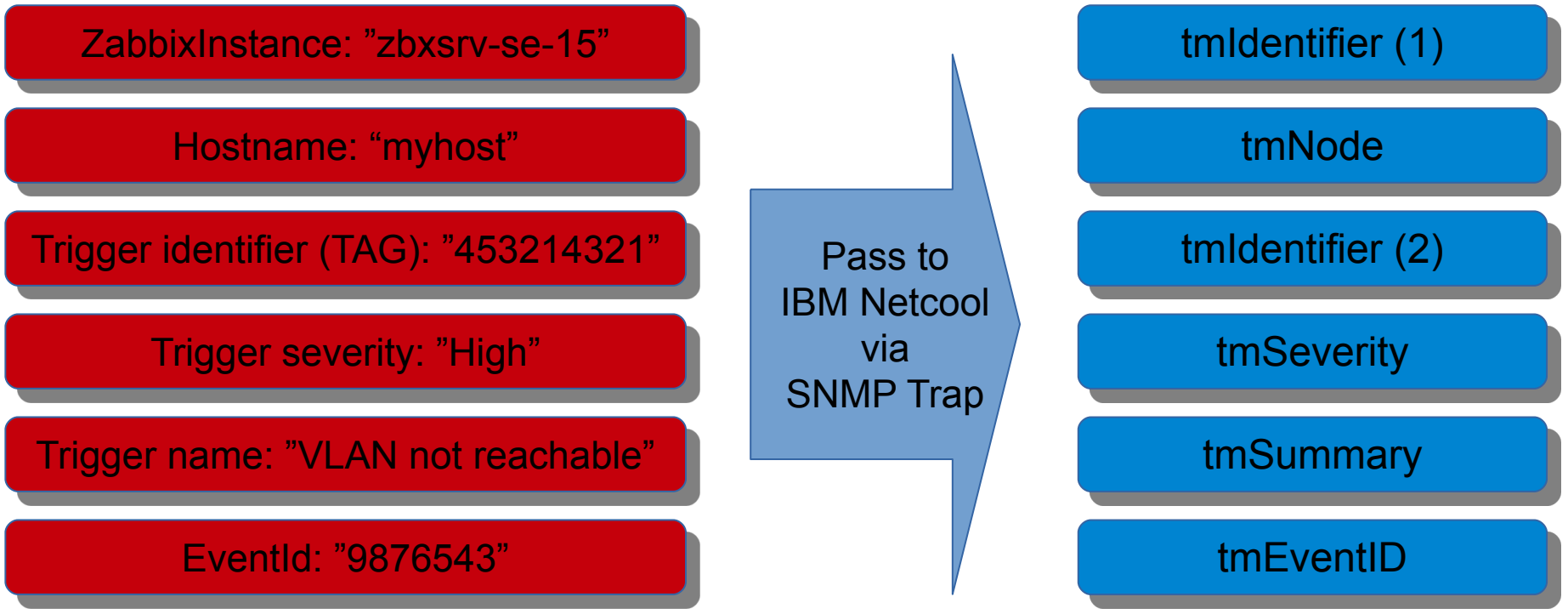
Design and Implementation



There are more fields involved ...

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Implementation

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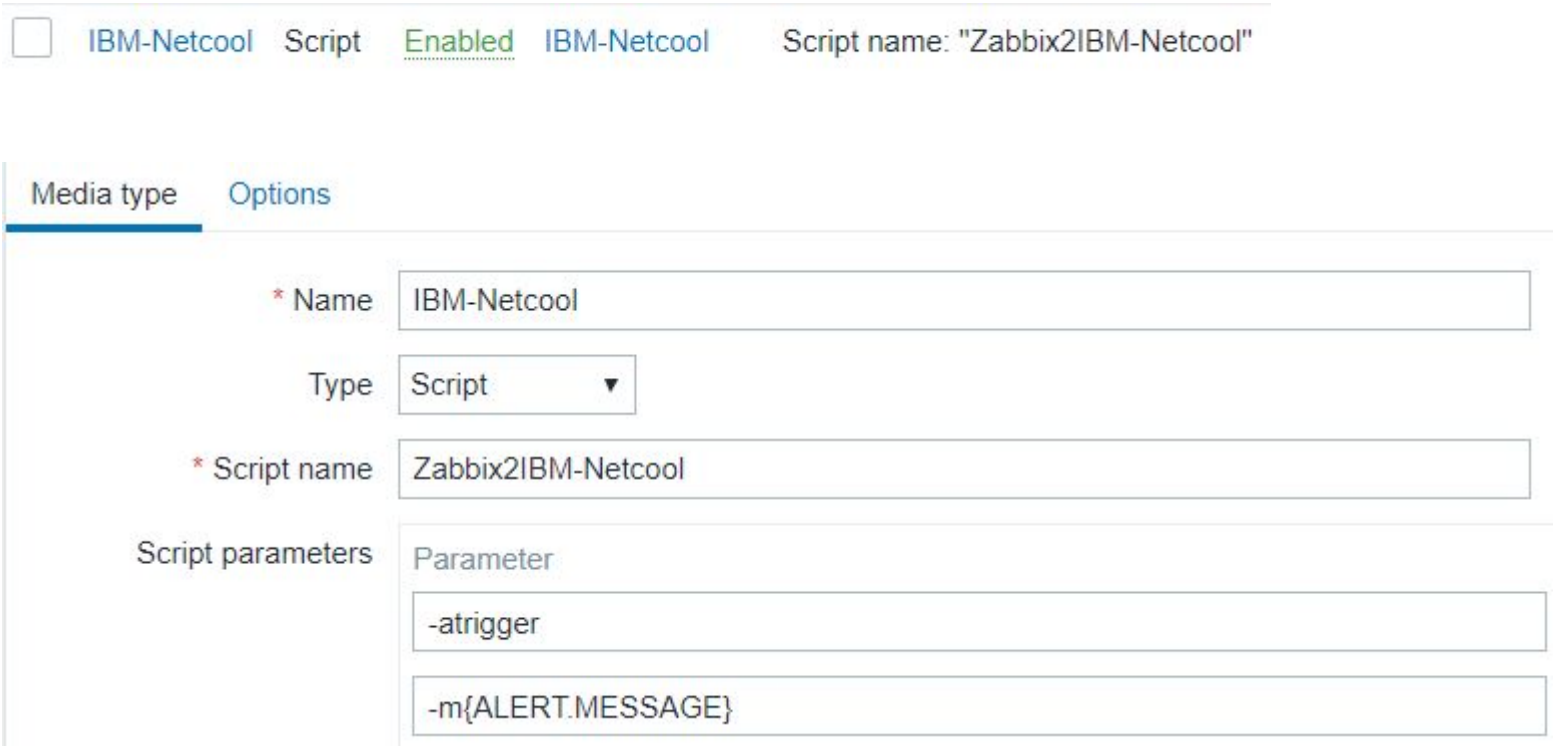
Design and Implementation - Media



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Design and Implementation - Action

IBM-Netcool Tag equals *netcoolid* **Send message to users:** IBM-Netcool via IBM-Netcool

Default subject: Zabbix2IBM-Netcool - Problem: {TRIGGER.NAME}

Default message:

```
<zabbix2ibmnetcool>
   <tmSeverity>{EVENT.NSEVERITY}</tmSeverity>
   <tmNode>{HOST.HOST}</tmNode>
   <tmConfigItemID>{INVENTORY.ASSET.TAG}</tmConfigItemID>
   <tmAlertGroup>{$TM_ALERT_GROUP}</tmAlertGroup>
   <tmSummary>{TRIGGER.NAME}</tmSummary>
   <zbxTriggerState>{EVENT.VALUE}</zbxTriggerState>
   <zbxEventTags>{EVENT.TAGS}</zbxEventTags>
   <zbxEventID>{EVENT.ID}</zbxEventID>
   <zbxEventDate>{EVENT.DATE}</zbxEventDate>
   <zbxEventTime>{EVENT.TIME}</zbxEventTime>
   <zbxTriggerDescription>{TRIGGER.DESCRIPTION}</zbxTriggerDescription>
</zabbix2ibmnetcool>
```

Pause operations for suppressed problems: ☑

Operations

Steps	Details	Start in	Duration
1	**Send message to users:** IBM-Netcool via IBM-Netcool	Immediately	Default

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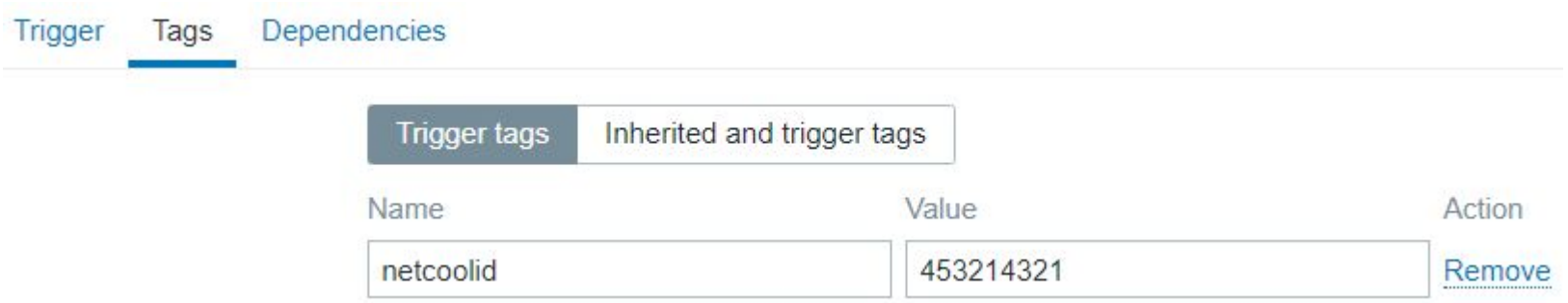
Design and Implementation - Trigger



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Resulting SNMP Trap send from Zabbix to IBM-Netcool

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IBM Netcool Trap payload - Problem

```
2019-03-24 10:34:21 devzab.intellitrend.loc [UDP: [172.20.20.196]:55795→[172.22.22.2]:16570]:
DISMAN-EXPRESSION-MIB::sysUpTimeInstance = Timeticks: (0) 0:00:00.00
SNMPv2-MIB::snmpTrapOID.0 = OID:
NATNETCOOL::tmIdentifier = STRING: "zbxsrv-se-015_726"
NATNETCOOL::tmManager = STRING: "ZABBIX_EVO"
NATNETCOOL::tmAgent = STRING: "zbxsrv-se-015"
NATNETCOOL::tmNode = STRING: "TestHost1"
NATNETCOOL::tmConfigItemID = STRING: "acc/NetworkElement/453214321"
NATNETCOOL::tmEventID = INTEGER: 9876543
NATNETCOOL::tmAlertGroup = STRING: "EVALUATION ALERT GROUP"
NATNETCOOL::tmAlertKey = ""
NATNETCOOL::tmSeverity = INTEGER: major(4)
NATNETCOOL::tmSummary = STRING: "Test Trigger"
NATNETCOOL::tmOriginalSeverity = INTEGER: 4
NATNETCOOL::tmAdditionalText = STRING: "Example trigger description."
NATNETCOOL::tmAlarmInService = INTEGER: 1
NATNETCOOL::tmEventTime = INTEGER: 1553374417
NATNETCOOL::tmURL = ""
```

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Design and Implementation

How does it look in IBM Netcool?

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The final result in IBM Netcool

Heartbeat messages

File Edit View Alerts Tools Help

P_SNMP_ZABBIX | Probes

ProbeName	Summary	Manager	Agent	Identifier
P_SNMP_ZABBIX	CAEM: Periodischer Heartbeat Zabbix Evolution (zbx_Lasttest)	ZABBIX_EVO	ZABBIX_EVO zbx_Lasttest	ZABBIX_EVO_zbx_Lasttest_Heartbeat
P_SNMP_ZABBIX	CAEM: Periodischer Heartbeat Zabbix Evolution (zbx[redacted])	ZABBIX_EVO	ZABBIX_EVO zbx[redacted]	ZABBIX_EVO_[redacted]_Heartbeat
P_SNMP_ZABBIX	CAEM: Periodischer Heartbeat Zabbix Evolution (zbx-[redacted])	ZABBIX_EVO	ZABBIX_EVO zbx-[redacted]	ZABBIX_EVO_zbx-[redacted]_Heartbeat
P_SNMP_ZABBIX	CAEM: Periodischer Heartbeat Zabbix Evolution (zbx[redacted])	ZABBIX_EVO	ZABBIX_EVO zbx[redacted]	ZABBIX_EVO_zbx[redacted]_Heartbeat
P_SNMP_ZABBIX	CAEM: Periodischer Heartbeat Zabbix Evolution (zbx_[redacted]	ZABBIX_EVO	ZABBIX_EVO zbx[redacted]	ZABBIX_EVO_zbx_[redacted]_Heartbeat

Alarms …

P_SNMP_ZABBIX	Probe P_SNMP_[redacted] did not receive any alerts in the last 20m.	ZABBIX_EVO	ZABBIX_EVO zbxsem	...	The probe P_SNMP_[redacted]
P_SNMP_ZABBIX	Probe P_SNMP_[redacted]: did not receive any alerts in the last 3h.	ZABBIX_EVO	ZABBIX_EVO zbxsem	...	The probe P_SNMP_[redacted]
P_SNMP_ZABBIX	Probe P_SNMP_[redacted] did not receive any alerts in the last 10m.	ZABBIX_EVO	ZABBIX_EVO zbxsem	...	The probe P_SNMP_[redacted]

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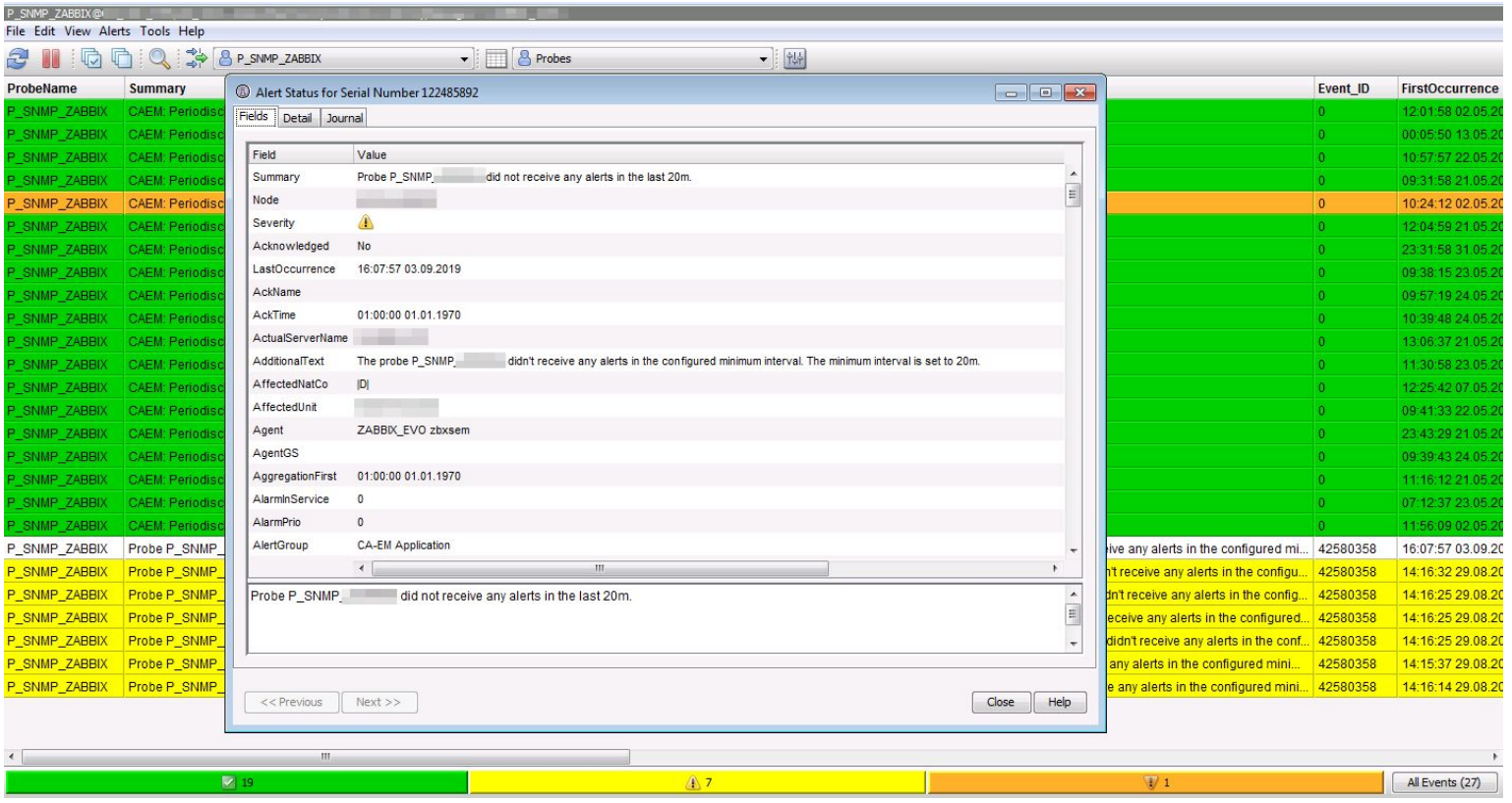
The final result in IBM Netcool



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Thank You!

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