

# IAS - IntelliTrend Advanced Services for Zabbix



IntelliTrend IT-Services GmbH

Otto-Brenner-Strasse 119

D-33607 Bielefeld, Germany



**ZABBIX**  
PREMIUM PARTNER

Contact: Wolfgang Alper

[wolfgang.alper@intellitrend.de](mailto:wolfgang.alper@intellitrend.de)

[www.intellitrend.de](http://www.intellitrend.de)

# IntelliTrend Advanced Services for Zabbix Service Monitoring

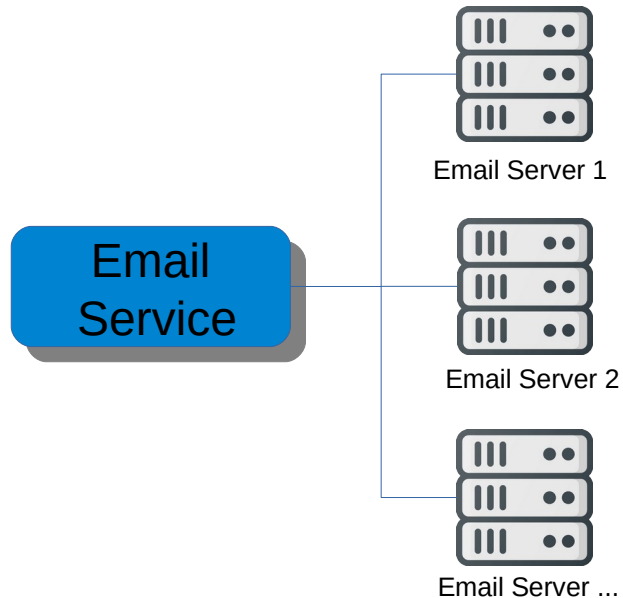


## What is service monitoring about?



# IntelliTrend Advanced Services for Zabbix

## What is service monitoring?



Possible criteria for Email **Service** unavailability:

- All Email Servers are unavailable
- More than 75% of Email Servers are unavailable
- Only one Email Server is available
- ...

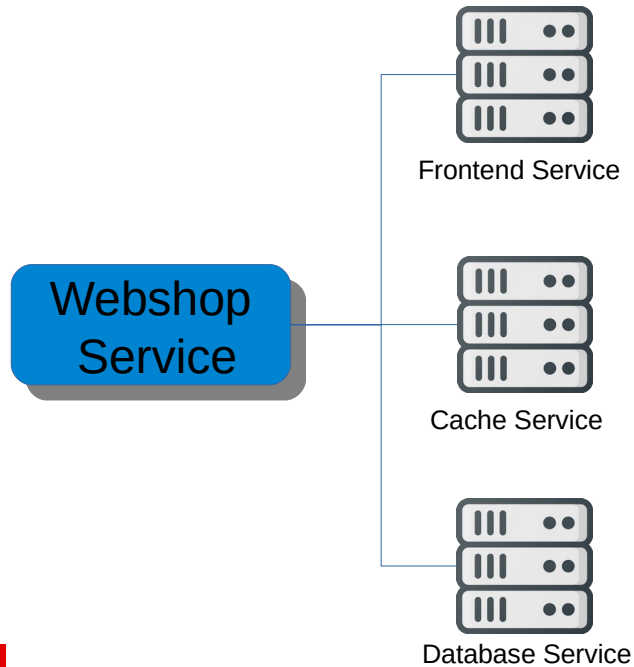
Different criteria for Email **Server** unavailability:

- Ping fails
- SMTP process not running
- SMTP process not responding
- No free diskspace
- Not available from all network zones
- No free memory
- CPU usage constantly at 100%
- ...

## Basic service definition

# IntelliTrend Advanced Services for Zabbix

## What is service monitoring?



Possible criteria for Webshop **Service** unavailability:

- Frontend Service is unavailable
- Database Service is unavailable
- Cache Service is unavailable

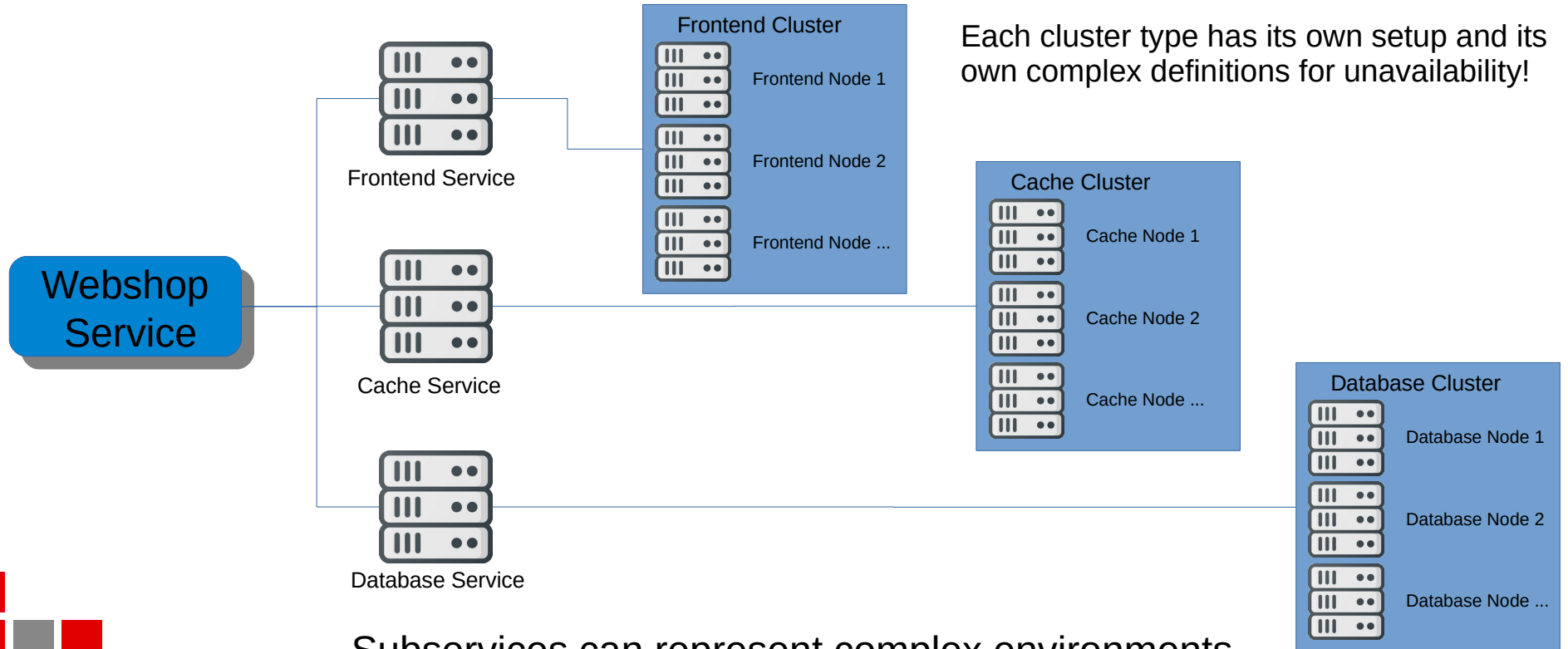
Different criteria for each **Subservice** unavailability:

- Frontend: Ping fails
- Frontend: HTTP process not running
- Frontend: PHP-FPM process not running
- Frontend: ...
- Cache Service: Cache process not running
- Cache Service: No free memory
- Cache Service: ...
- Database Service: PGSQL process not running
- Database Service: No free diskspace
- Database Service: ...

Different subservices build one service

# IntelliTrend Advanced Services for Zabbix

## What is service monitoring?



Subservices can represent complex environments

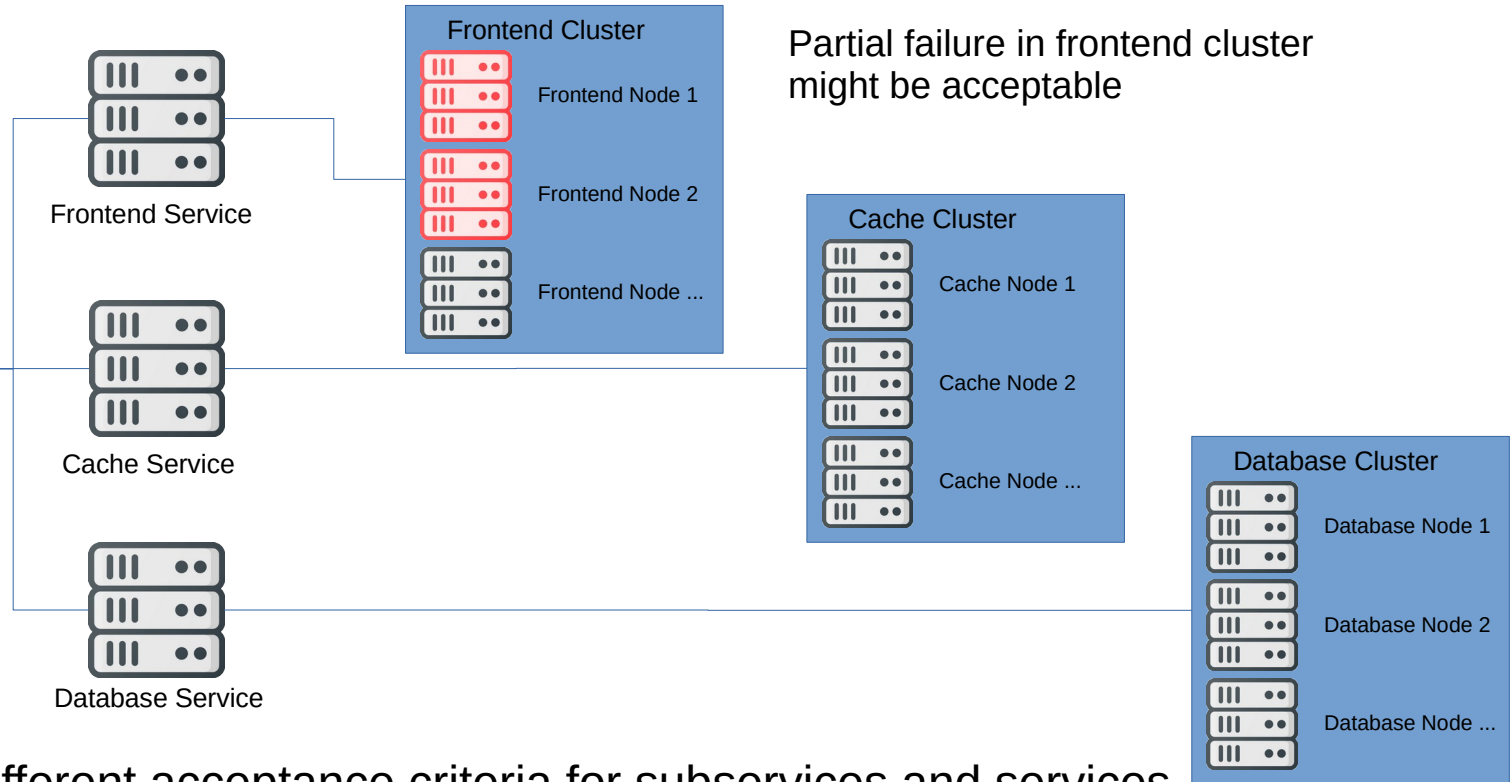
# IntelliTrend Advanced Services for Zabbix

## What is service monitoring?



Main Service is working. No indication that subservice has issues although nodes fail.

**Webshop Service**



Different acceptance criteria for subservices and services

# IntelliTrend Advanced Services for Zabbix

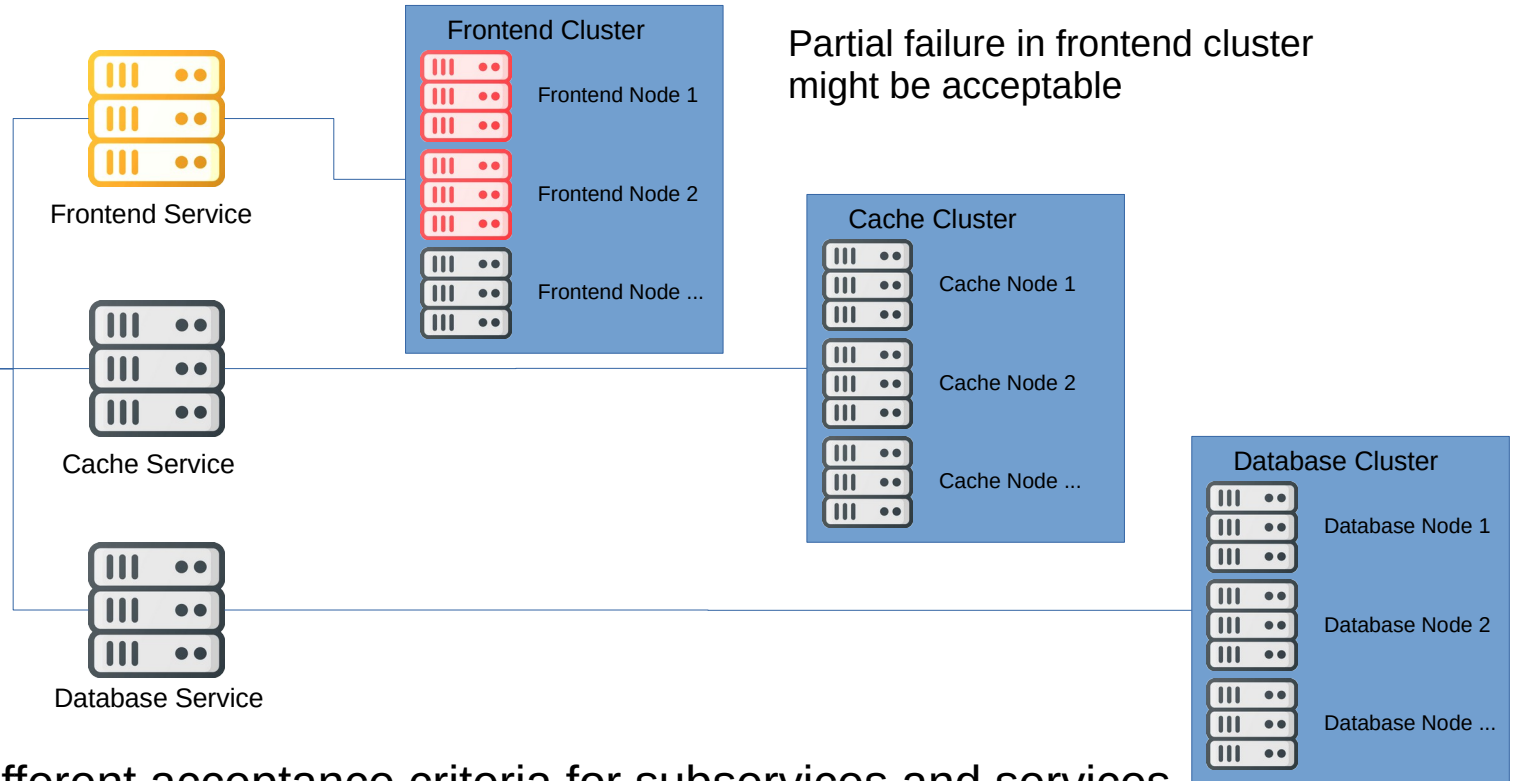
## What is service monitoring?



Main Service is working, but subservice shows „warning state“.

Partial failure in frontend cluster might be acceptable

**Webshop Service**



Different acceptance criteria for subservices and services

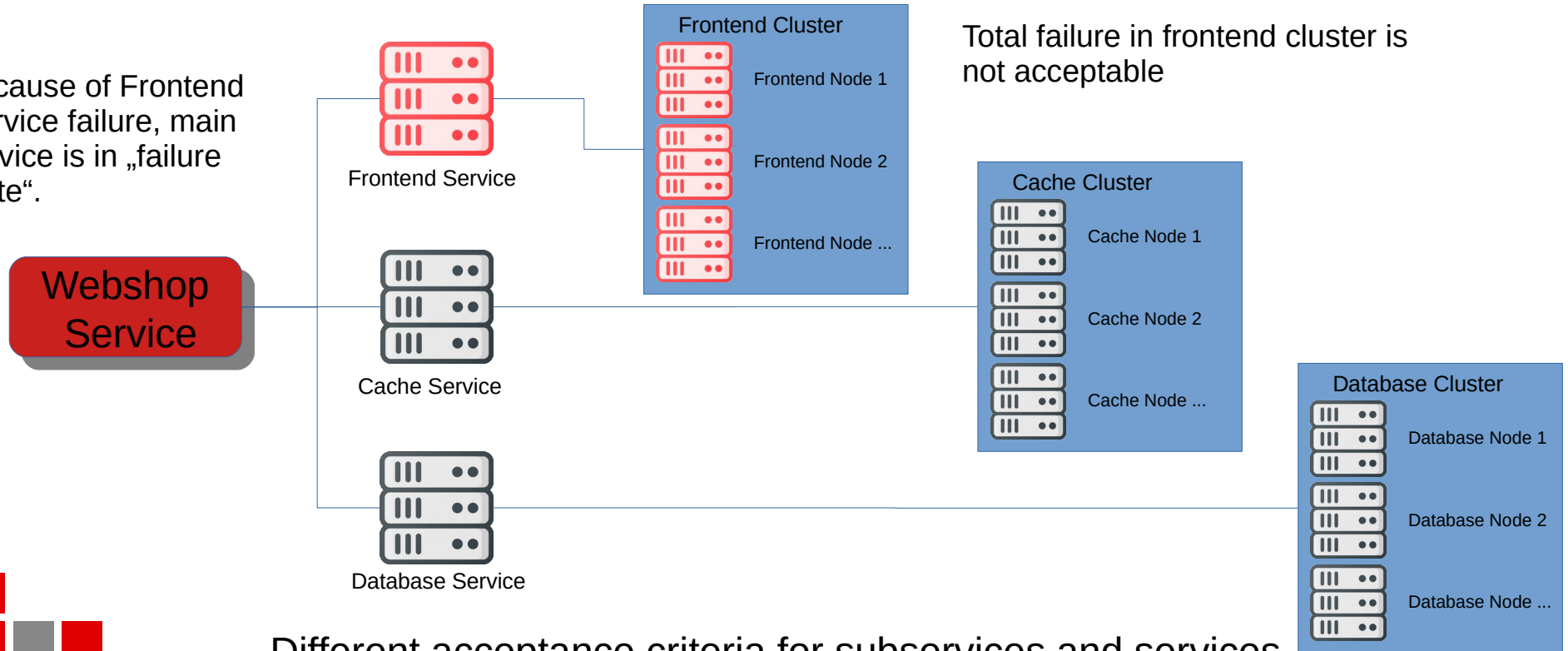
# IntelliTrend Advanced Services for Zabbix

## What is service monitoring?



Because of Frontend Service failure, main service is in „failure state“.

Total failure in frontend cluster is not acceptable



Different acceptance criteria for subservices and services



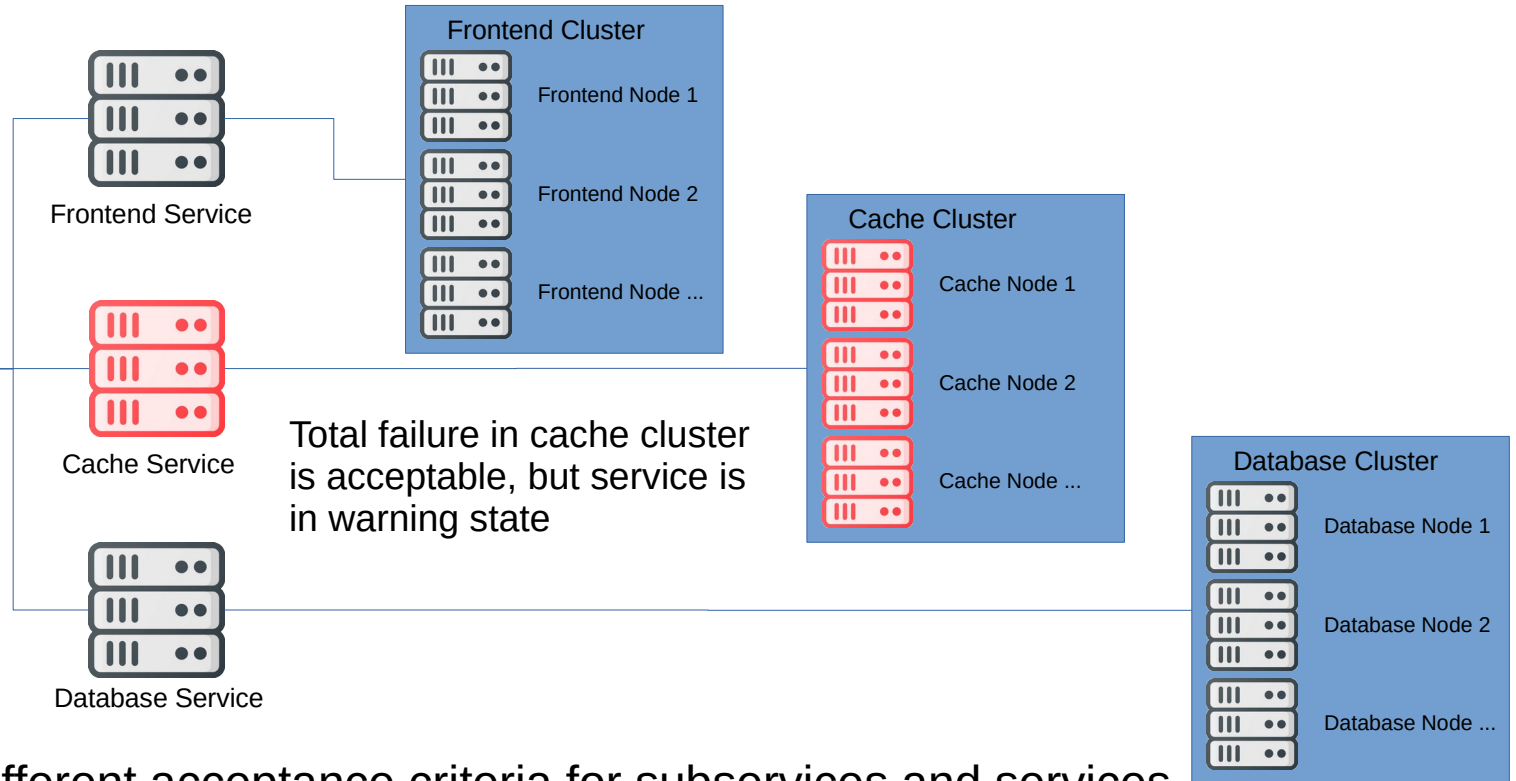
# IntelliTrend Advanced Services for Zabbix

## What is service monitoring?



Because of Cache Service failure, main service is in „warning state“.

Webshop Service



Different acceptance criteria for subservices and services

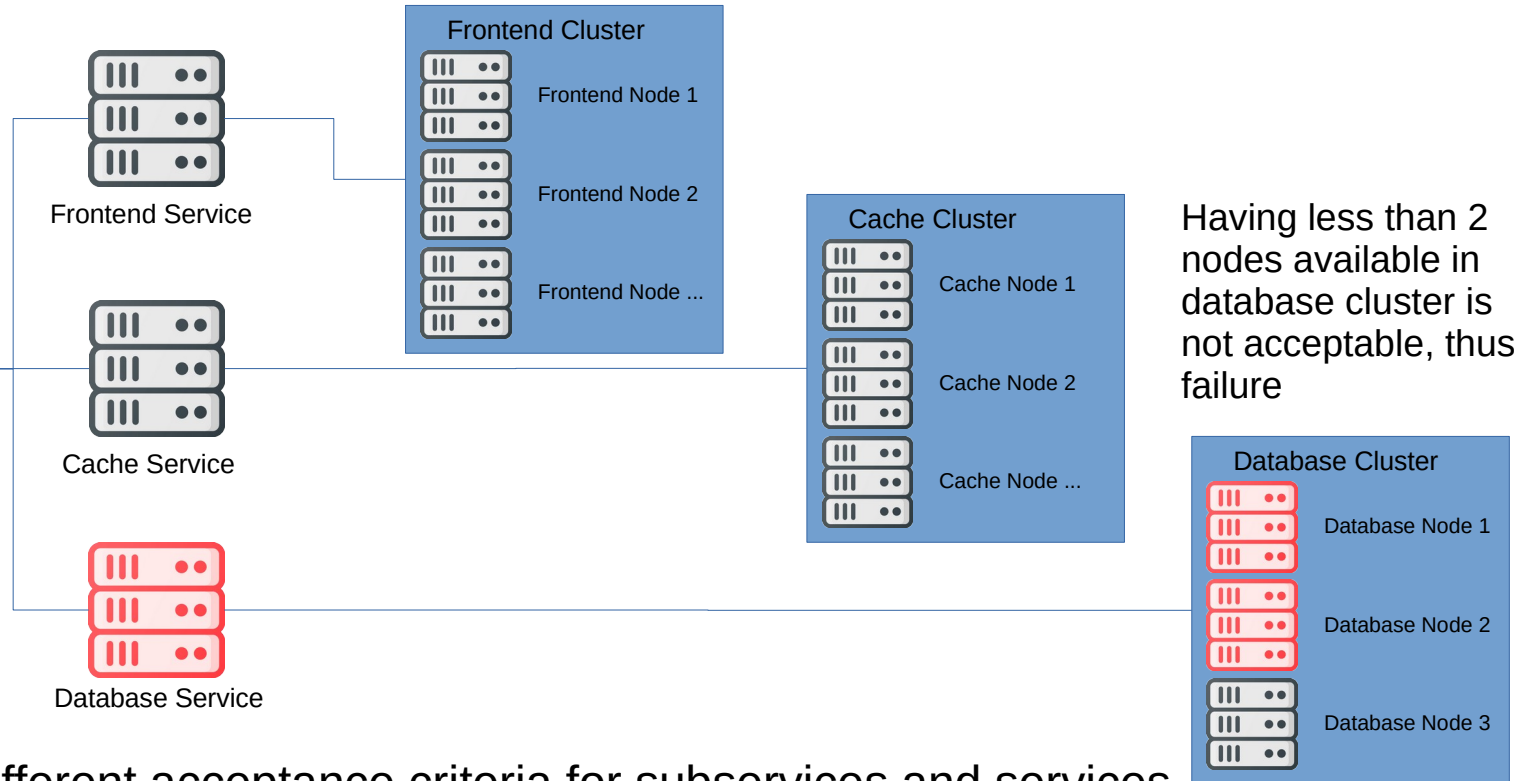
# IntelliTrend Advanced Services for Zabbix

## What is service monitoring?



Because of Database Service failure, main service is in „failure state“.

Webshop Service



Different acceptance criteria for subservices and services

# IntelliTrend Advanced Services for Zabbix Service Monitoring



OK, but i can use Zabbix Service Monitoring  
already?



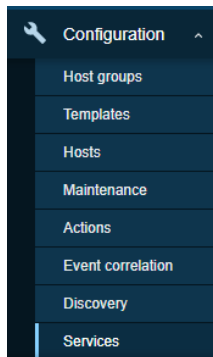
# IntelliTrend Advanced Services for Zabbix

## Limitations of Zabbix service monitoring



### Problems:

- Each service can be assigned to exactly **1 trigger only**
- Services can be grouped, but have **strong limitations**:
  - All child services fail
  - At least one child service fails
- Impossible to setup **complex** dependancies



Service Dependencies Time

\* Name

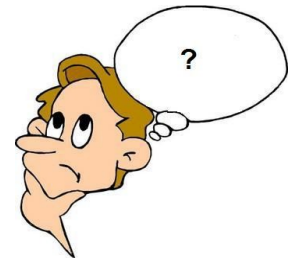
\* Parent service

Status calculation algorithm

Calculate SLA, acceptable SLA (in %)

Trigger

\* Sort order (0->999)



# IntelliTrend Advanced Services for Zabbix

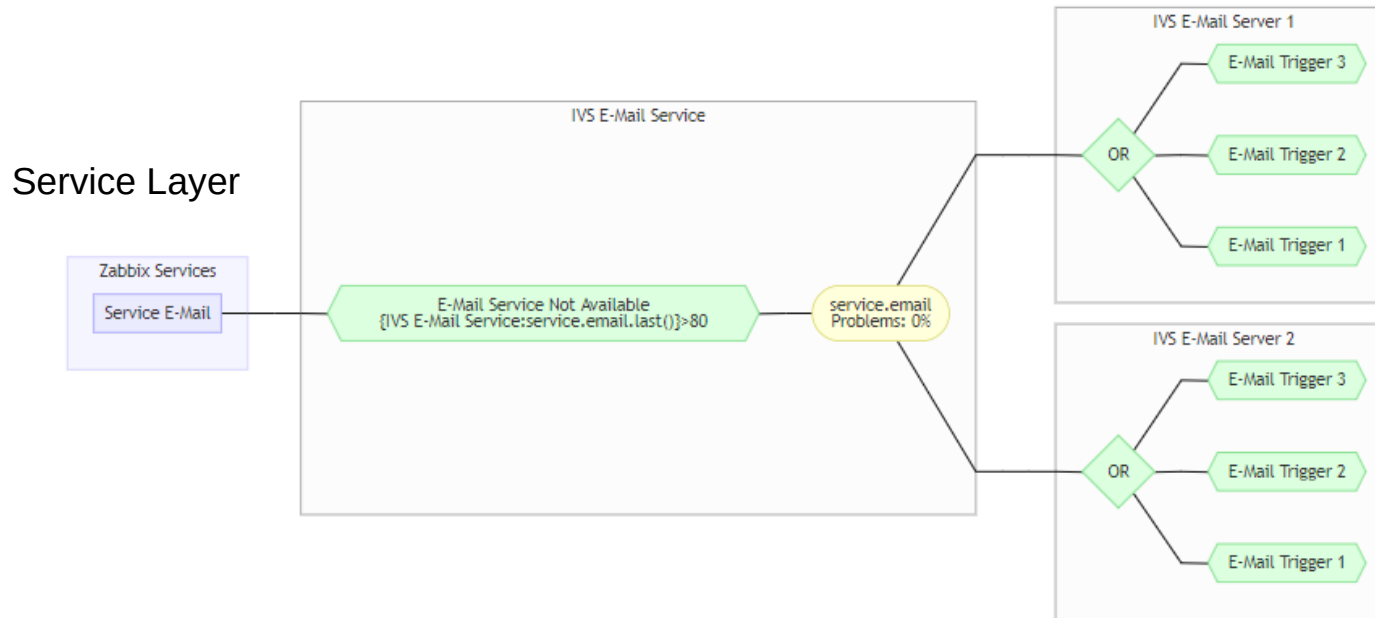
## Limitations of Zabbix service monitoring



Ok, lets get technical

# IntelliTrend Advanced Services for Zabbix

## Limitations of Zabbix service monitoring



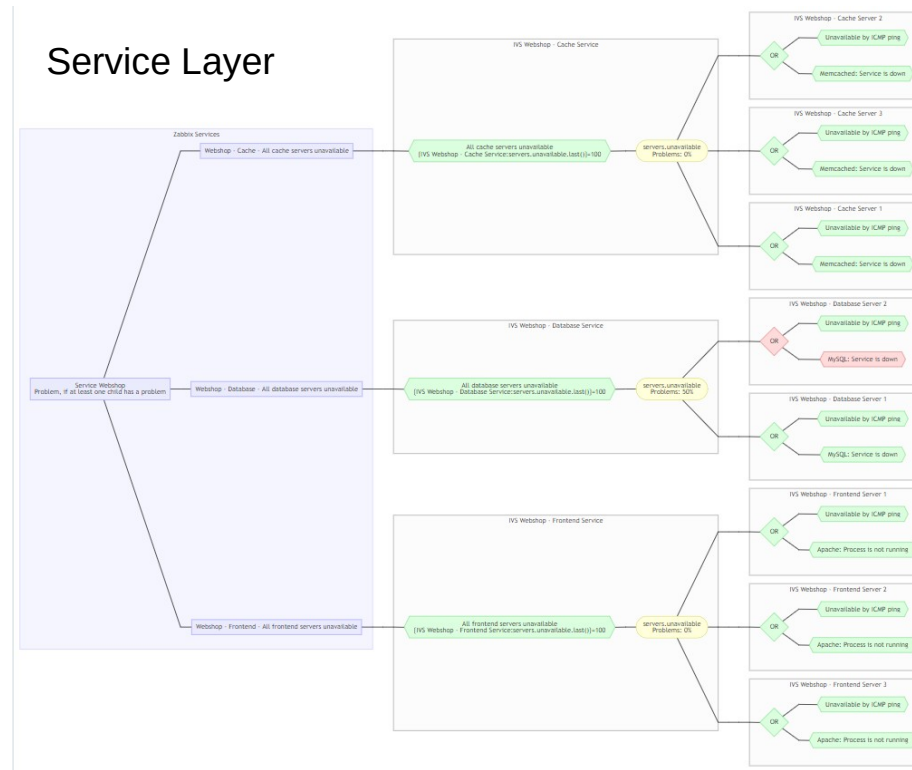
### Example: Email Service

- Each server has a set of templates assigned
- Template contains trigger that define critical problem states
- When any of the critical trigger fire, server is unavailable
- **What happens when there are more than 2 servers building the service?**
- ...more triggers, more items, more systems ...

How to setup this basic example using Zabbix Services?

# IntelliTrend Advanced Services for Zabbix

## Limitations of Zabbix service monitoring



### Example: Webshop Service:

- Service is build on different subservices
- Subservices are build from complex systems
- Each server within a system has a set of templates assigned
- Template contains trigger that define problem states
- When any of the critical trigger fire, server is unavailable, this might impact the service as a whole

Or a more complex example...

# IntelliTrend Advanced Services for Zabbix Service Monitoring



Ok i see, but how can  
Intellitrend Advanced Services (IAS)  
help?



# IntelliTrend Advanced Services for Zabbix IVS Overview



## IAS

- ... enables Zabbix to not only monitor systems, but also to monitor services that depend on various systems
- ... allows the definition of service-specific operating criteria, down to the individual system level
- ... uses standard Zabbix configuration mechanisms to setup dependancies between systems that form a service
- ... integrates user-friendly into the Zabbix Frontend
- ... provides a graphical representation of the entire service, including all involved hosts
- ... checks itself for configuration issues



# IntelliTrend Advanced Services for Zabbix IAS Overview



ZABBIX Zabbix IAS Demo

Modules

Scan directory

Filter

Name  Status **Any** Enabled Disabled

Apply Reset

<input type="checkbox"/> Name ▲	Version	Author	Description	Status
<input type="checkbox"/> Advanced Services Module	1.2.4	Wolfgang Alper	Advanced service monitoring with Zabbix.	Enabled

Displaying 1 of 1 found

Implemented as **Zabbix frontend module with backend server**

- Easy to install and de-install
- Update safe
- No changes to Zabbix frontend code required
- No changes to Zabbix server code required
- Compatible with any Zabbix 5.x version
- Entire communication is network based
- No database- or shared file access required



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# IntelliTrend Virtual Services for Zabbix IVS Overview



**ZABBIX** << Zabbix IAS Demo

IntelliTrend Advanced Services for Zabbix v1.2.4

Services	Hosts	Triggers	Tag Names	License
4	25	56	3	SnS Expiry: 2023-04-28 Licensed services: unlimited IntelliTrend GmbH

**Services with unsupported items**

1.) Service Webshop	Services: 4	Triggers: 19	Items: 3	Hosts: 11
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**Services**

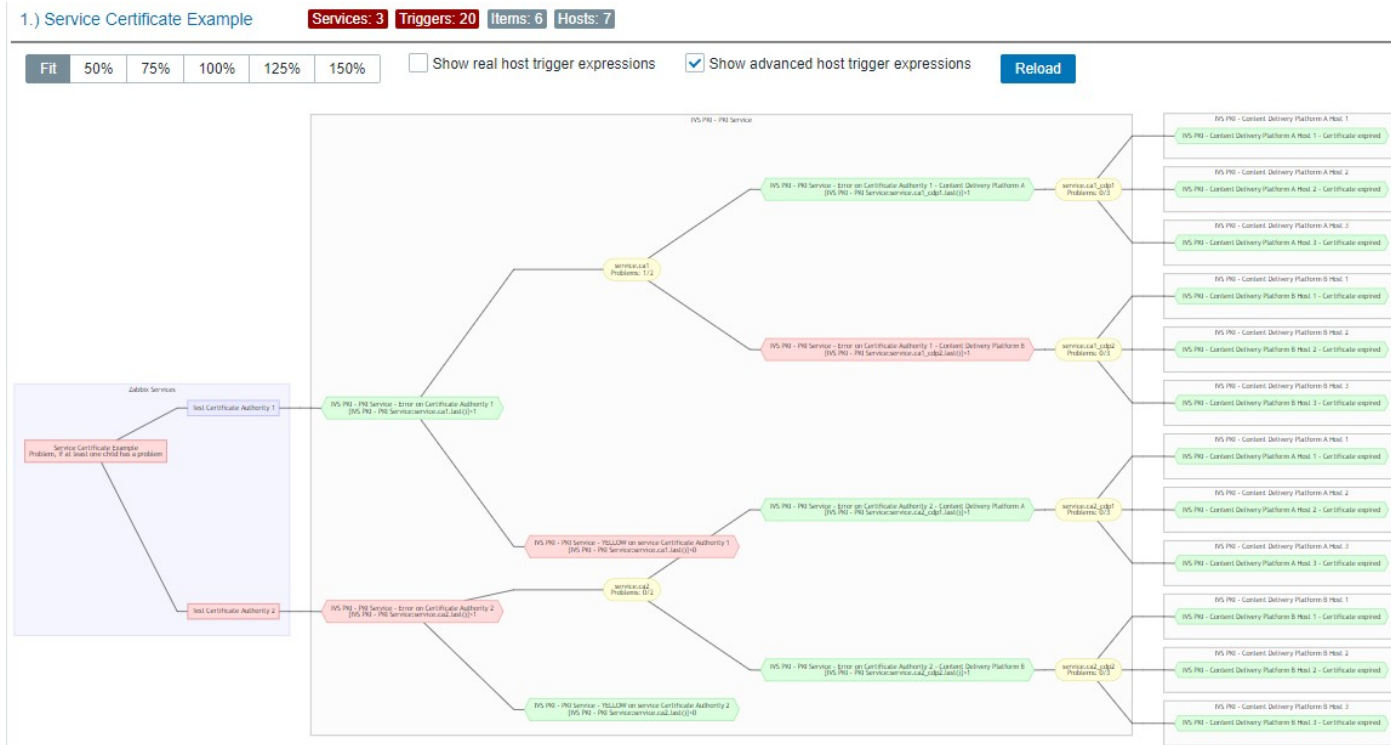
1.) Service Certificate Example	Services: 3	Triggers: 20	Items: 6	Hosts: 7
2.) Service E-Mail	Services: 1	Triggers: 10	Items: 1	Hosts: 4
3.) Service Per-Host	Services: 1	Triggers: 7	Items: 1	Hosts: 3

Dashboard access via Zabbix frontend – New menu entry **Monitoring/Advanced Services**  
**Configured services overview:**

- Section – **Services with unsupported items**  
List of services that will not work due to unsupported items
- Section - **Services**  
List of services that work properly



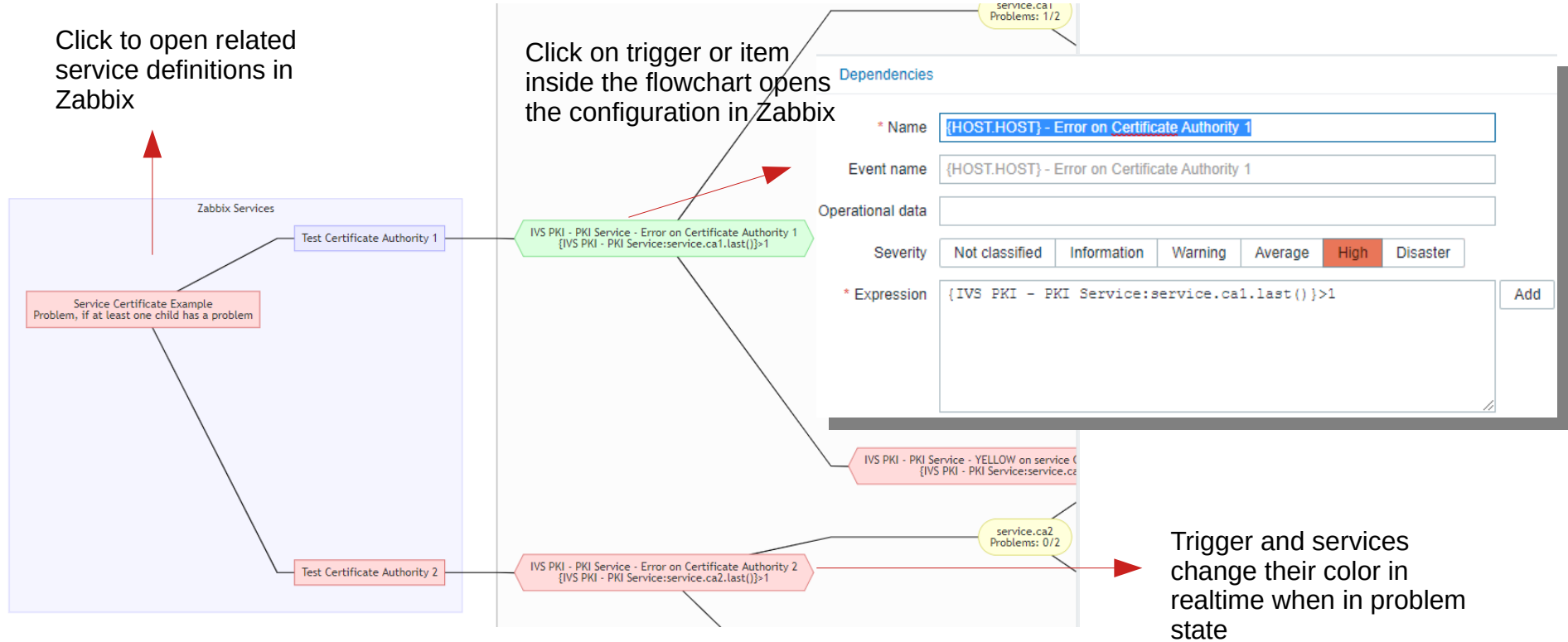
# IntelliTrend Advanced Services for Zabbix IAS Overview



Flowchart shows in realtime the current representation of the service state

- Flowchart **renders in realtime** from actual Zabbix configuration
- Flowchart **shows involved entities** like hosts, items, triggers and services
- **Zoom** buttons allow to Zoom in/out **without page reload**
- **Stats** show number of entities involved, including their **current state**
- **Any entity is clickable** and opens the corresponding Zabbix configuration

# IntelliTrend Virtual Advanced for Zabbix IAS Overview



Service flowchart with „click to open configuration“



# IntelliTrend Advanced Services for Zabbix IAS Overview



Host Templates IPMI **Tags 1** Macros Inventory Encryption

Name	Value	Action
<input type="text" value="SvcMonHost"/>	<input type="text" value="IVS PKI - PKI Service"/>	<a href="#">Remove</a>

[Add](#)

All hosts / IVS PKI - PKI Service Enabled ZBX SNMP JMX IPMI Applications Items 6 Triggers 8

Host Templates IPMI **Tags 1** Macros Inventory Encryption

\* Host name

Visible name

\* Groups

Trigger **Tags 1** Dependencies

Trigger tags

Name	Value	Action
<input type="text" value="SvcMonKey"/>	<input type="text" value="service.ca2_cdp1"/>	<a href="#">Remove</a>

[Add](#)

All hosts / IVS PKI - PKI Service Enabled ZBX SNMP JMX IPMI Applications Items 6

Item Preprocessing

\* Name

Type

\* Key

Relations are build on tags and services



# IntelliTrend Advanced Services for Zabbix IAS Overview



## Managing configuration issues



# IntelliTrend Advanced Services for Zabbix IAS Overview



**ZABBIX** Zabbix IAS Demo

## Services with unsupported items

1.) Service Webshop Services: 4 Triggers: 19 Items: 3 Hosts: 11

Fit 50% 75% 100% 125% 150%  Show real host trigger expressions  Show advanced host trigger expressions **Reload**

**Unsupported items:**

- [IVS Webshop - Cache Server 2] - Memcached: Service is down: Cannot evaluate expression: "Cannot evaluate function "IVS Webshop - Cache Server 2:memcached.ping["{\$MEMCACHED.CONN.URI}"].last()": item is not supported."
- [IVS Webshop - Cache Server 3] - Memcached: Service is down: Cannot evaluate expression: "Cannot evaluate function "IVS Webshop - Cache Server 3:memcached.ping["{\$MEMCACHED.CONN.URI}"].last()": item is not supported."
- [IVS Webshop - Cache Server 1] - Memcached: Service is down: Cannot evaluate expression: "Cannot evaluate function "IVS Webshop - Cache Server 1:memcached.ping["{\$MEMCACHED.CONN.URI}"].last()": item is not supported."
- [IVS Webshop - Frontend Server 1] - Apache: Process is not running: Cannot evaluate expression: "Cannot evaluate function "IVS Webshop - Frontend Server 1:proc.num["{\$APACHE.PROCESS\_NAME}"].last()": item is not supported."
- [IVS Webshop - Frontend Server 3] - Apache: Process is not running: Cannot evaluate expression: "Cannot evaluate function "IVS Webshop - Frontend Server 3:proc.num["{\$APACHE.PROCESS\_NAME}"].last()": item is not supported."

**Diagram:**

The diagram shows the configuration of the 'IVS Webshop - Cache Service'. It is composed of two main parts: 'IVS Webshop - Cache Server 2' and 'IVS Webshop - Cache Server 3'. Each server part is connected to an 'OR' gate. The 'OR' gate for 'IVS Webshop - Cache Server 2' has two inputs: 'Unavailable by ICMP ping' and 'Memcached: Service is down'. The 'OR' gate for 'IVS Webshop - Cache Server 3' also has two inputs: 'Unavailable by ICMP ping' and 'Memcached: Service is down'. These two 'OR' gates are connected to a central 'servers.unavailable Problems: 0s' node. This node is connected to a 'Webshop - Cache - All cache servers unavailable' node, which is further connected to a 'Zabbix Services' node.

Configuration issues and other issues are shown within each service in realtime





# IntelliTrend Advanced Services for Zabbix IAS Overview



## Software design



# IntelliTrend Advanced Services for Zabbix Software Design

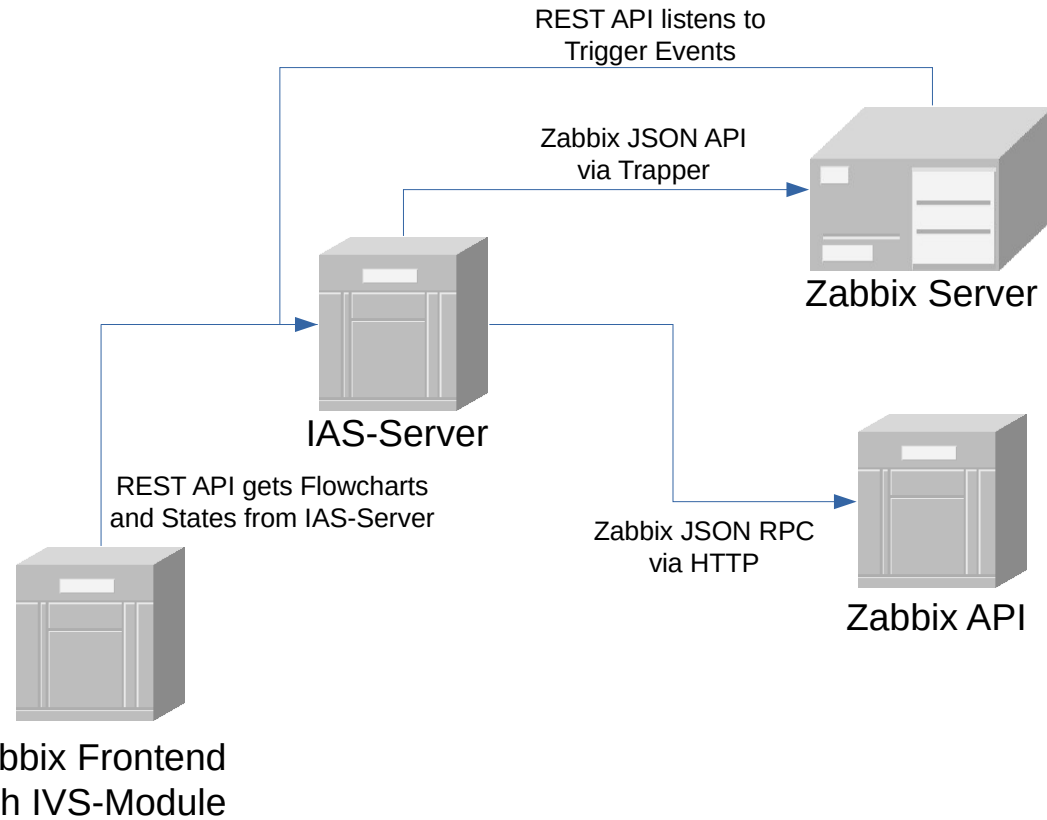


## IAS Server

- Installed on Zabbix Server
- Gets configuration from Zabbix
- Calculates dependency tree
- Monitors selected trigger events
- Updates Service Hosts items
- Checks for configuration issues
- Builds flowchart for frontend module
- Builds States for frontend module

## IAS Frontend Module

- Installed on Zabbix Frontend
- Provides IVS Dashboard
- Shows Flowcharts



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# IAS - IntelliTrend Advanced Services for Zabbix

## Thank You!



IntelliTrend IT-Services GmbH

Otto-Brenner-Strasse 119

D-33607 Bielefeld, Germany



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