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ZABBIX PREMIUM PARTNER

ZABBIX CERTIFIED TRAINER

Webinar

Nested LLD: practical usage in Zabbix

all your microphones are muted

ask your questions in Q&A, not in the Chat

use Chat for discussion, networking or applause

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Nested Low Level Discovery

New powerfull feature for automation since Zabbix 7.4

- Standard LLD creates:
  - Items
  - Triggers
  - Graphs
  - Hosts
- New LLD creates:
  - Nested LLD rules

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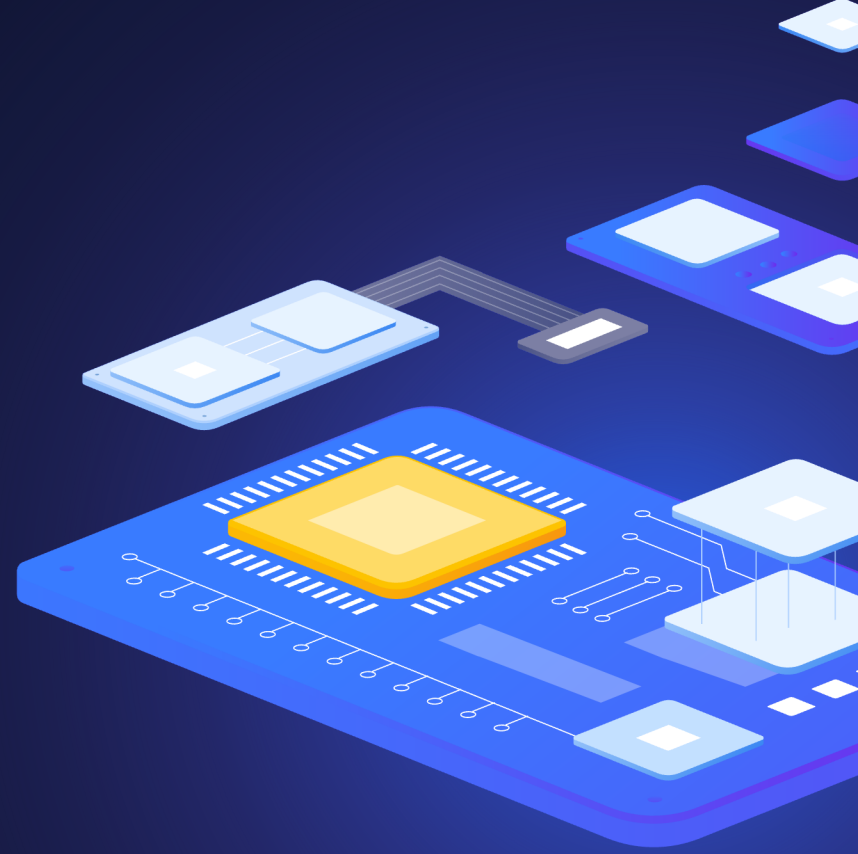
LLD – Low Level Discovery



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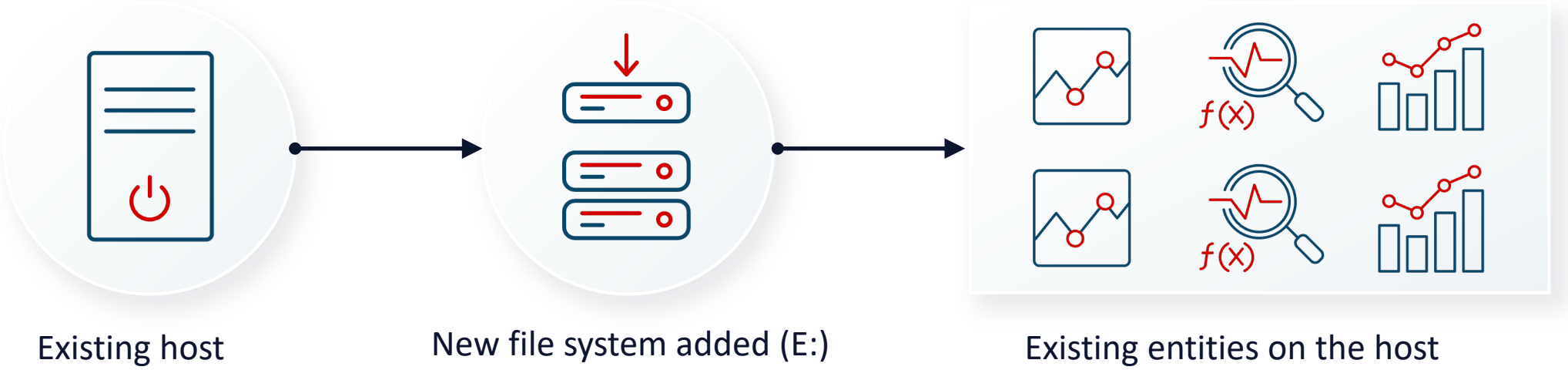
LLD – Low Level Discovery

Powerfull technology for automation

- LLD creates:
  - Items
  - Triggers
  - Graphs
  - Hosts
  - Nested LLD rules



Nested LLD

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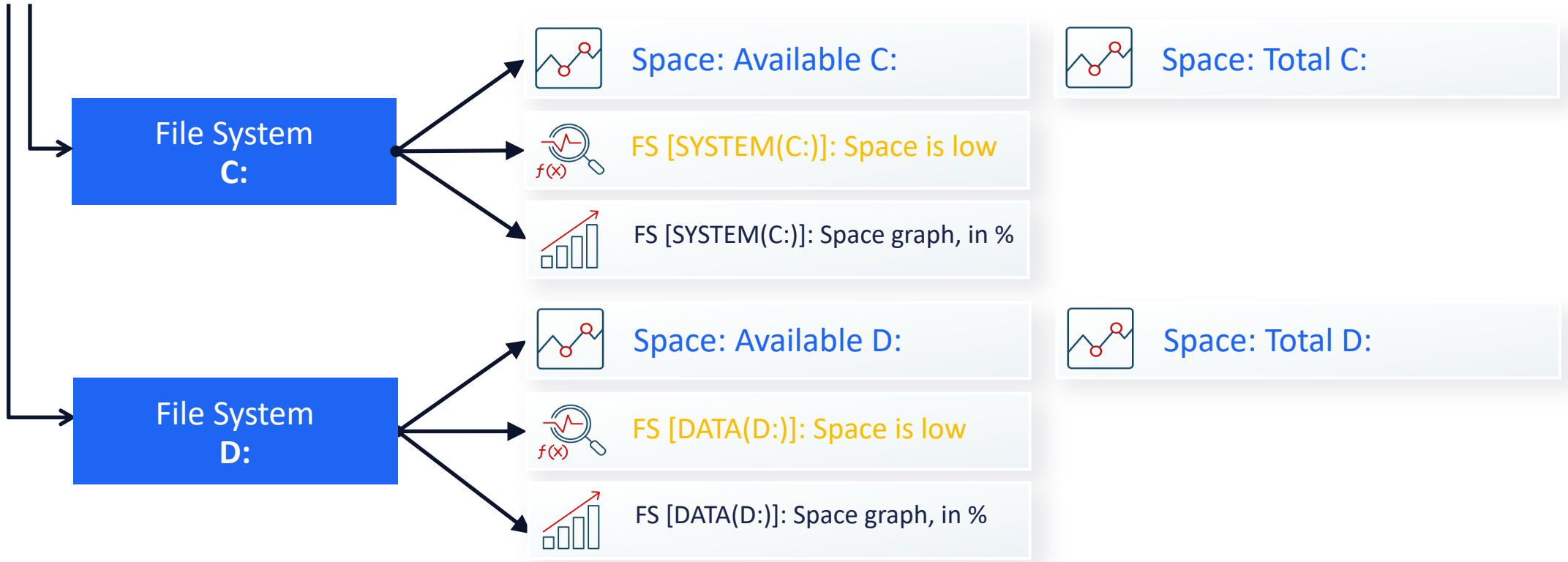
LLD rule

- Space: Available {#FSNAME}
- Space: Total {#FSNAME}
- FS [{#FSLABEL}({#FSNAME})]: Space is low
- FS [{#FSLABEL}({#FSNAME})]: Space usage graph, in %



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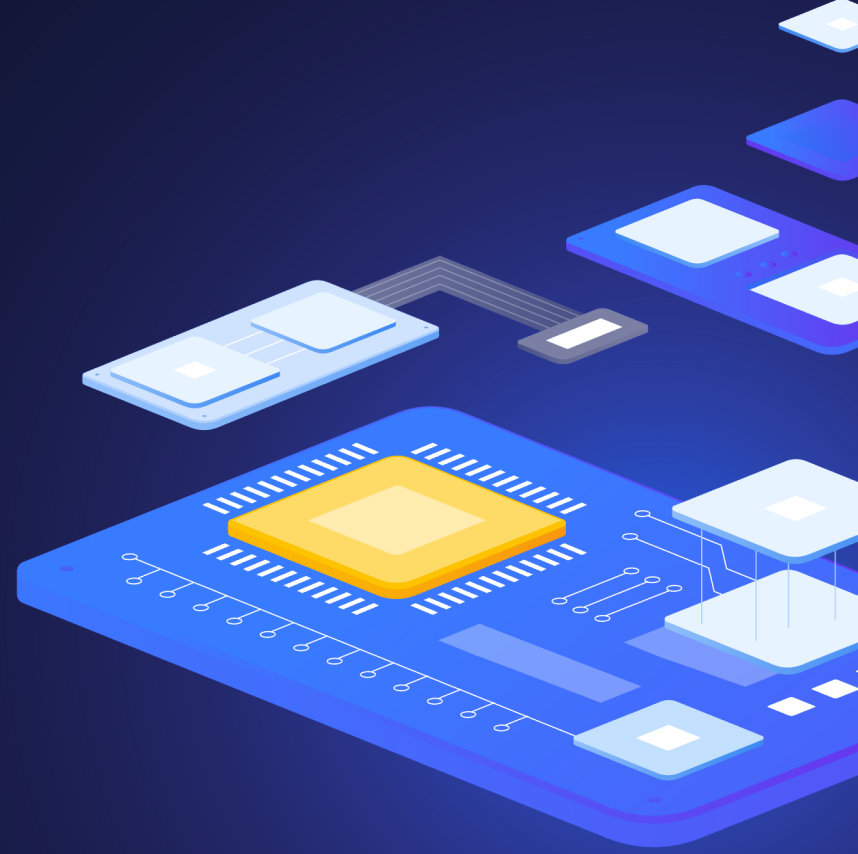
Nested LLD



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Nested LLD – Nested Low Level Discovery

Powerfull technology for automation and monitoring structured data

- More complex scenarios can be implemented
- Unlimited levels of nested LLD rules are supported

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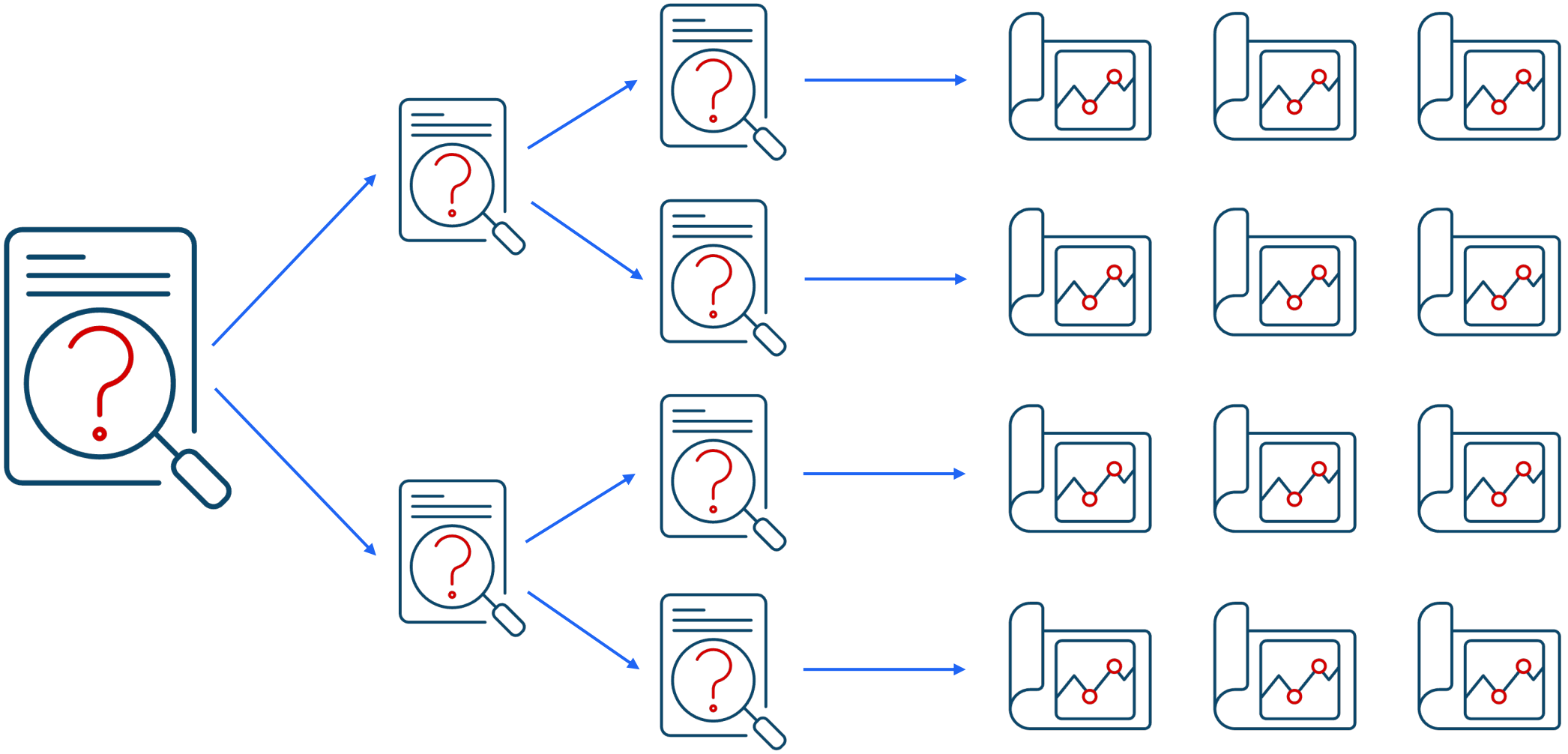
Nested Low Level Discovery



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Nested LLD

Storage monitoring example

Monitoring hierarchical data

- Storage
- Controllers
- Cages
- Disks

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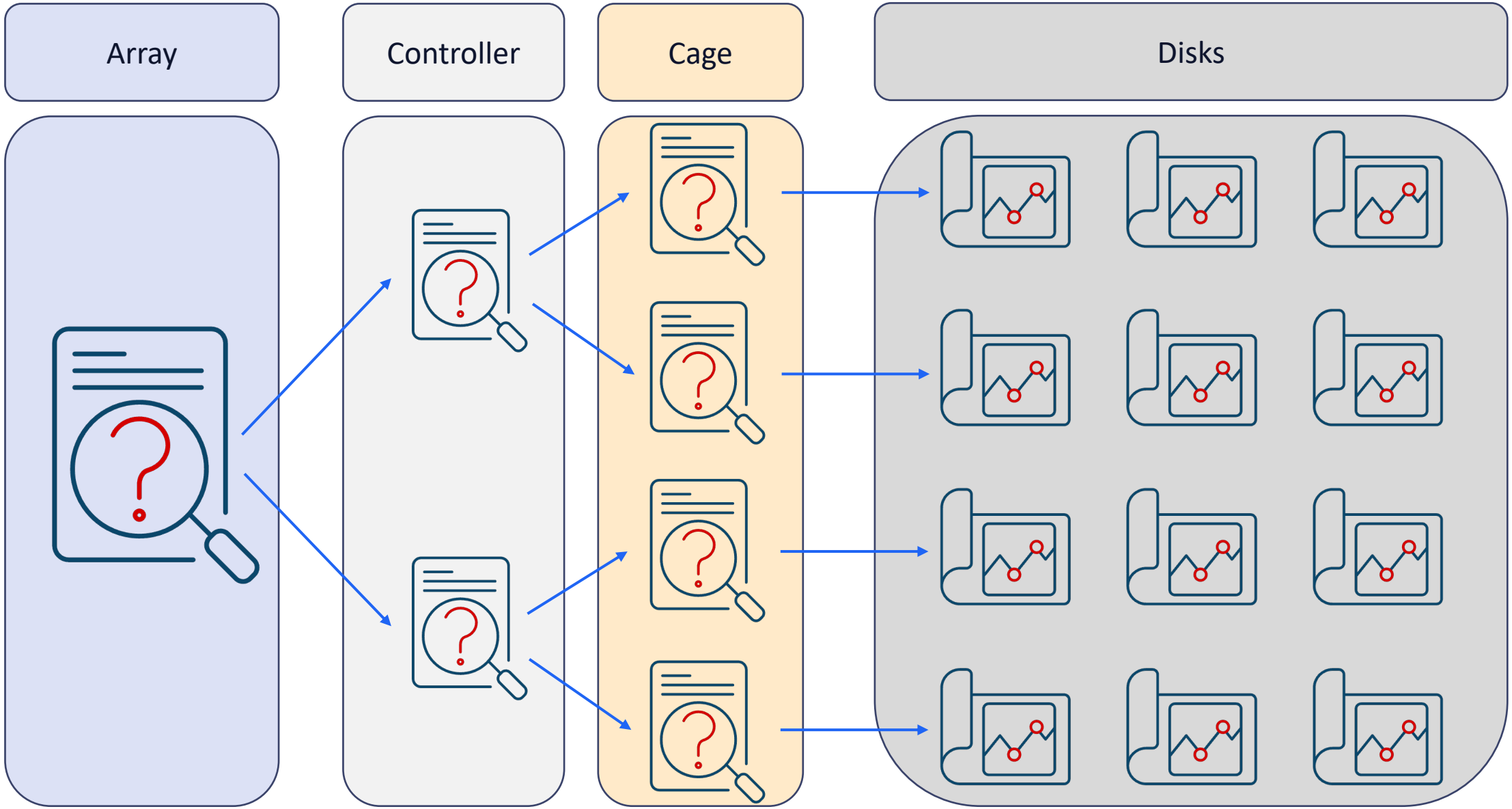
Nested LLD



Nested LLD

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Storage monitoring example– RAW data


```
{
  "diskArray": {
    "id": "ARRAY-99",
    "model": "Webinar 2026",
    "controllers": [
      {
        "controllerId": "CTRL-A",
        "role": "Active",
        "diskCages": [
          {
            "cageId": "CAGE-A1",
            "cageStatus": "ok",
            "disks": [
              { "slot": 1, "serial": "SN-A101", "type": "SSD", "capacityGB": 1920, "status": "Online" },
              { "slot": 2, "serial": "SN-A102", "type": "SSD", "capacityGB": 1920, "status": "Online" }
            ]
          },
          {
            "cageId": "CAGE-A2",
            "cageStatus": "warning",
            "disks": [
              { "slot": 1, "serial": "SN-A201", "type": "HDD", "capacityGB": 12000, "status": "Online" },
              { "slot": 2, "serial": "SN-A202", "type": "HDD", "capacityGB": 12000, "status": "Degraded" }
            ]
          }
        ]
      },
```

Nested LLD

Storage monitoring example– RAW data


```
{
       "controllerId": "CTRL-B",
       "role": "Standby",
       "diskCages": [
         {
           "cageId": "CAGE-B1",
           "cageStatus": "ok",
           "disks": [
             { "slot": 1, "serial": "SN-B101", "type": "SSD", "capacityGB": 1920, "status": "Online" },
             { "slot": 2, "serial": "SN-B102", "type": "SSD", "capacityGB": 1920, "status": "Online" }
           ]
         },
         {
           "cageId": "CAGE-B2",
           "cageStatus": "ok",
           "disks": [
             { "slot": 1, "serial": "SN-B201", "type": "HDD", "capacityGB": 12000, "status": "Online" },
             { "slot": 2, "serial": "SN-B202", "type": "HDD", "capacityGB": 12000, "status": "Online" }
           ]
         }
       ]
     }
   ]
 }
}
```

Nested LLD

Storage monitoring example – Latest Data

Result:

- LLD creates:
  - Controllers
  - Cages
  - Disks

Host	Name ▲	Last check	Last value	Change	Tags
DiskArray	Array datra RAW				raw
DiskArray	Array ID	8s	ARRAY-99		component: inventory
DiskArray	Array model	8s	Webinar 2026		component: inventory
DiskArray	Cage [(CTRL-A),CAGE-A1] Status	8s	ok		cageid: CAGE-A1
DiskArray	Cage [(CTRL-A),CAGE-A2] Status	8s	warning		cageid: CAGE-A2
DiskArray	Cage [(CTRL-B),CAGE-B1] Status	8s	ok		cageid: CAGE-B1
DiskArray	Cage [(CTRL-B),CAGE-B2] Status	8s	ok		cageid: CAGE-B2
DiskArray	Controller [(CTRL-A)] Status	8s	Active		controllerid: CTRL-A
DiskArray	Controller [(CTRL-B)] Status	8s	Standby		controllerid: CTRL-B
DiskArray	Disk [(CTRL-A),CAGE-A1,Slot: 1] Status	8s	Online		cageid: CAGE-A1 controllerid: CTRL-A serial: SN-A101
DiskArray	Disk [(CTRL-A),CAGE-A1,Slot: 2] Status	8s	Online		cageid: CAGE-A1 controllerid: CTRL-A serial: SN-A102
DiskArray	Disk [(CTRL-A),CAGE-A2,Slot: 1] Status	8s	Online		cageid: CAGE-A2 controllerid: CTRL-A serial: SN-A201
DiskArray	Disk [(CTRL-A),CAGE-A2,Slot: 2] Status	8s	Degraded		cageid: CAGE-A2 controllerid: CTRL-A serial: SN-A202
DiskArray	Disk [(CTRL-B),CAGE-B1,Slot: 1] Status	8s	Online		cageid: CAGE-B1 controllerid: CTRL-B serial: SN-B101
DiskArray	Disk [(CTRL-B),CAGE-B1,Slot: 2] Status	8s	Online		cageid: CAGE-B1 controllerid: CTRL-B serial: SN-B102
DiskArray	Disk [(CTRL-B),CAGE-B2,Slot: 1] Status	8s	Online		cageid: CAGE-B2 controllerid: CTRL-B serial: SN-B201
DiskArray	Disk [(CTRL-B),CAGE-B2,Slot: 2] Status	8s	Online		cageid: CAGE-B2 controllerid: CTRL-B serial: SN-B202

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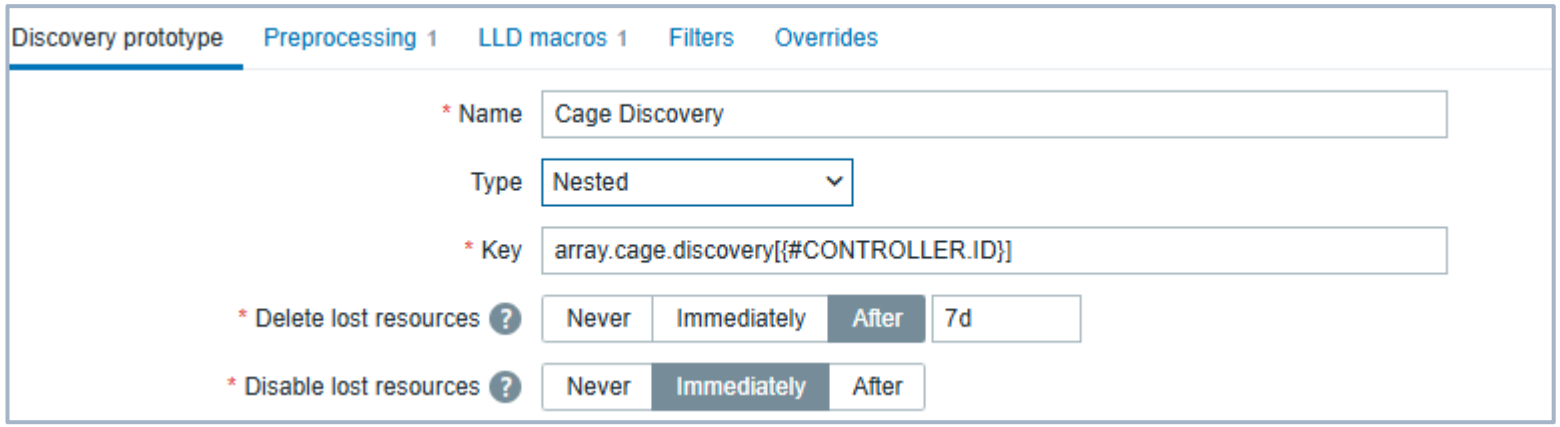
Nested type of Discovery prototype

- Nested LLD rules – type Nested
- Nested LLD level inherits its portion of JSON data from previous level



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Advantages and Limits

Advantages

- Simple hierarchical Discovery
- Different technology in levels
- More complex Scenarios

Limits

- Unable to useparent prototype as master item :
  - https://support.zabbix.com/browse/ZBXNEXT-10481
  - Available for Dependent Discovery, but not for Dependent Item
- Prototype confilcts with built-in items (impossible indexing)

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Nested LLD

Zabbix 7.0

Can Zabbix 7.0 do monitoring of same example data?

- ????

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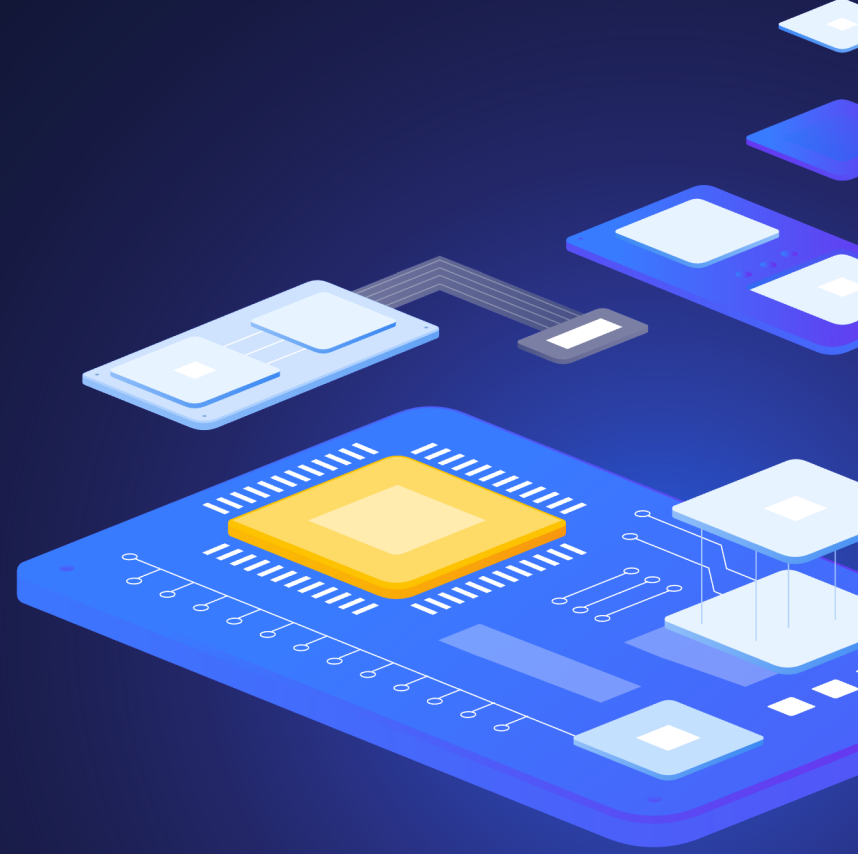
Examples

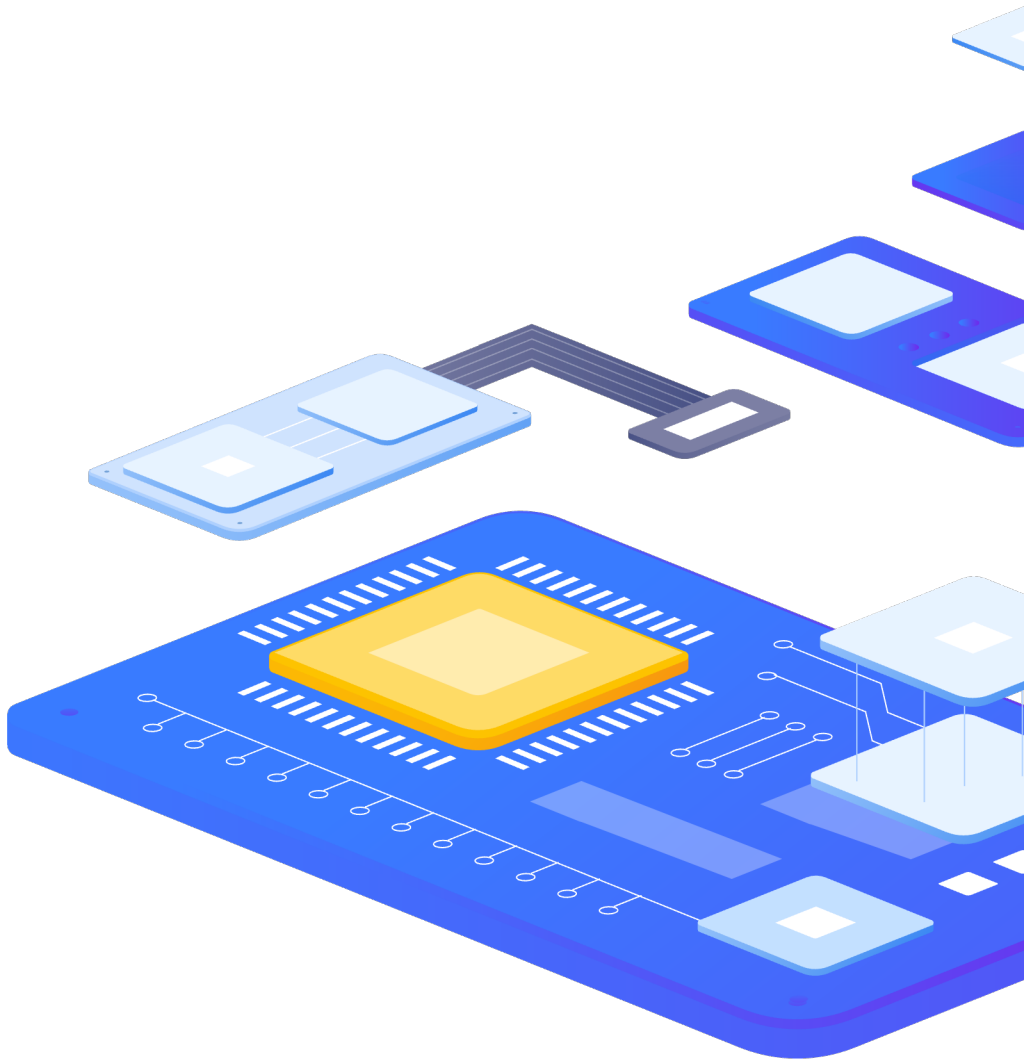


Nested LLD

Zabbix 8 templates

Nested LLD templates

- Domain RDAP by HTTP
- GitHub organization by HTTP
- MariaDB by ODBC
- MySQL by ODBC
- Proxmox VE by HTTP



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Example 1 - Proxmox Template 8.0

Proxmox nodes discovery

- Node [{#NODE.NAME}]: Certificate Discovery
- Node [{#NODE.NAME}]: Disks discovery
- Node [{#NODE.NAME}]: Storage discovery

Proxmox QEMU discovery

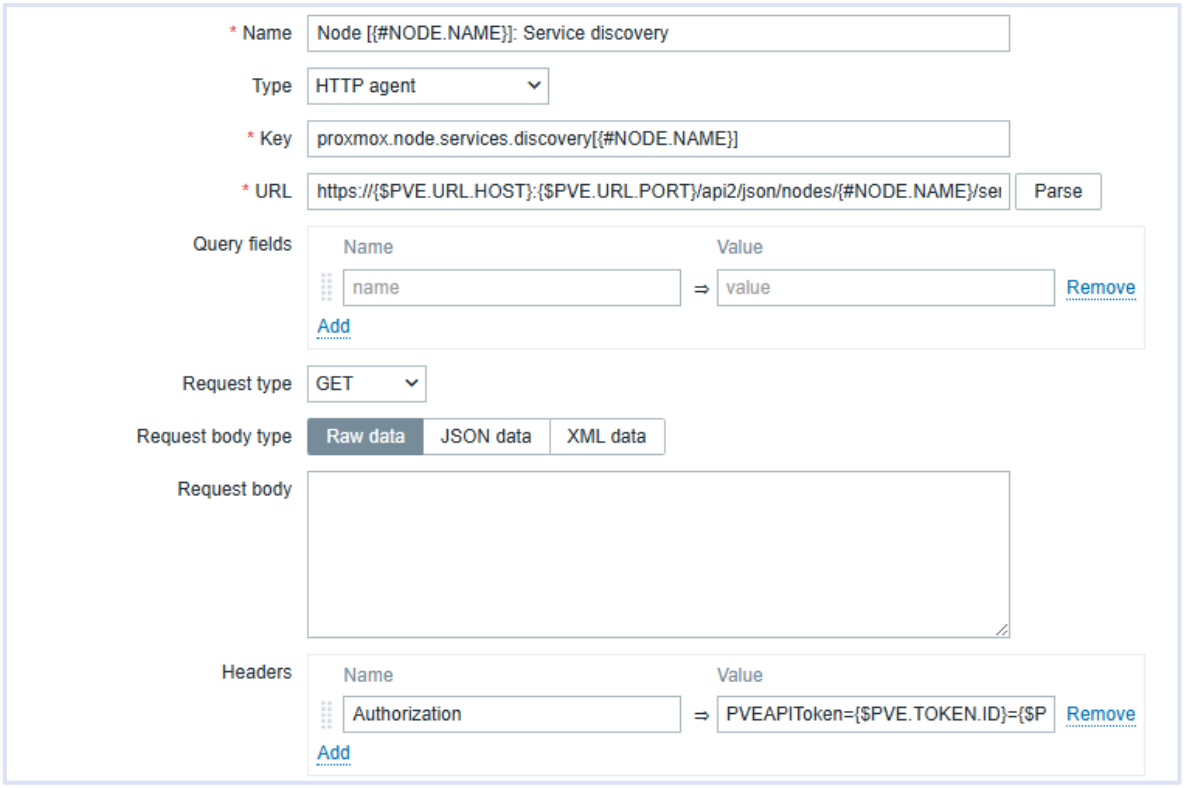
- Node [{#NODE.NAME}]: QEMU [{#QEMU.NAME}]: Filesystem discovery
- Node [{#NODE.NAME}]: QEMU [{#QEMU.NAME}]: Network interfaces discovery
- Node [{#NODE.NAME}]: QEMU [{#QEMU.NAME}]: OS info discovery

Nested LLD

Example 1 - Proxmox Node Services

Extending template for Service discovery

- Node [{#NODE.NAME}]: Service discovery



Nested LLD

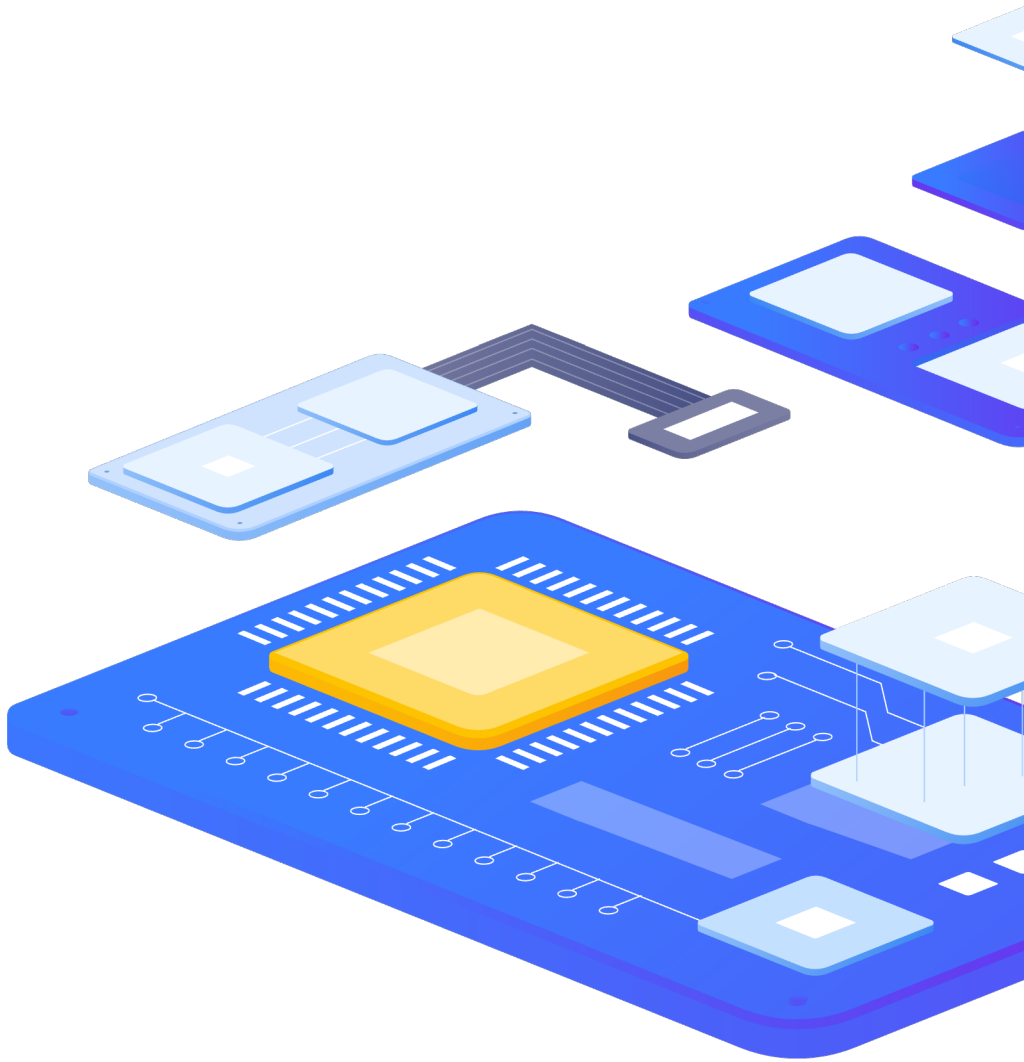
Example 2 - DNS

DNS Servers discovery – agent

- net.dns.record[,{$DNS.ZONE},NS,,,]

IP address discovery[{#DNS.SERVER.NAME}]

- net.dns.record[,{#DNS.SERVER.NAME},A,2,,]



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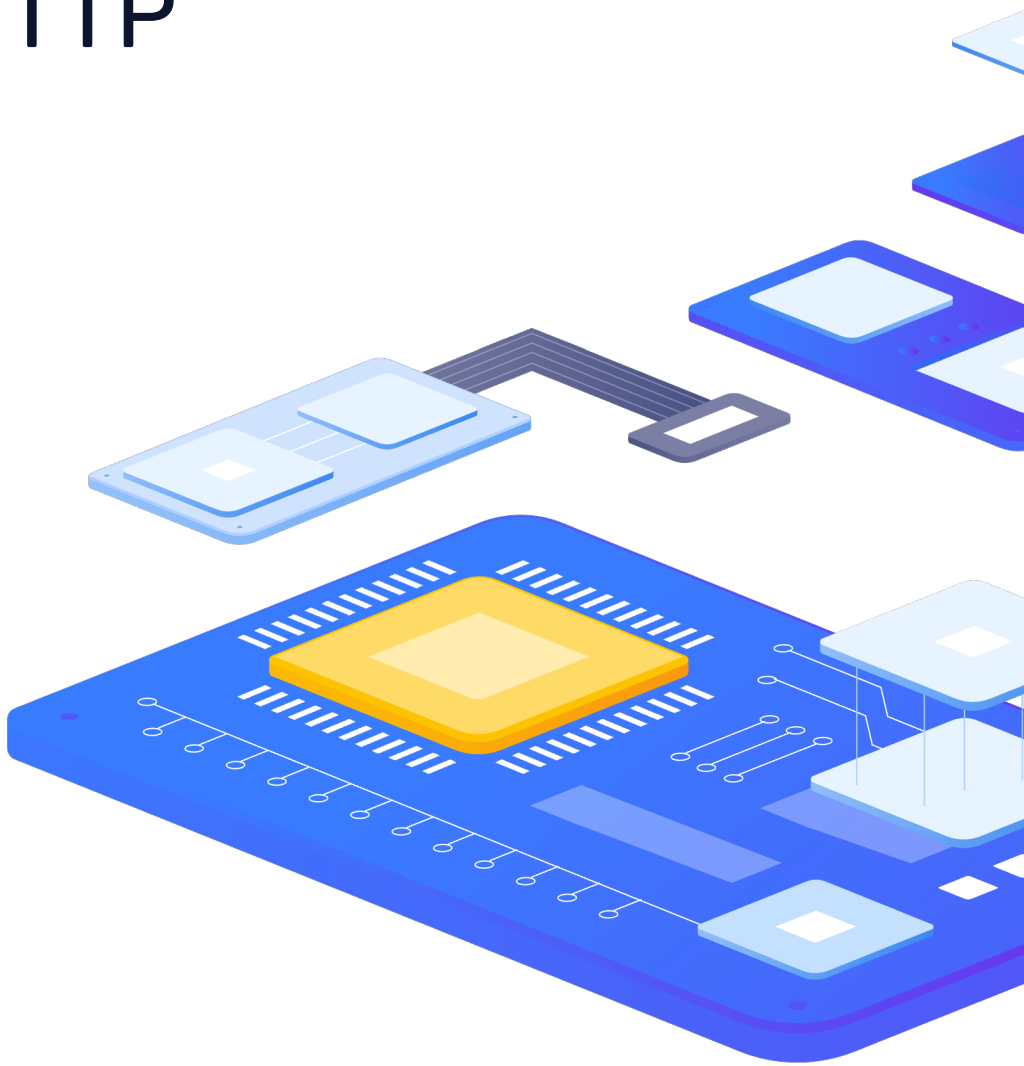
Example 3 – Domain RDAP by HTTP

Domain RDAP by HTTP

- Discovery domains with RDAP server
  - Discovery entities for domain [{#DOMAIN}]
  - Discovery notices for domain [{#DOMAIN}]



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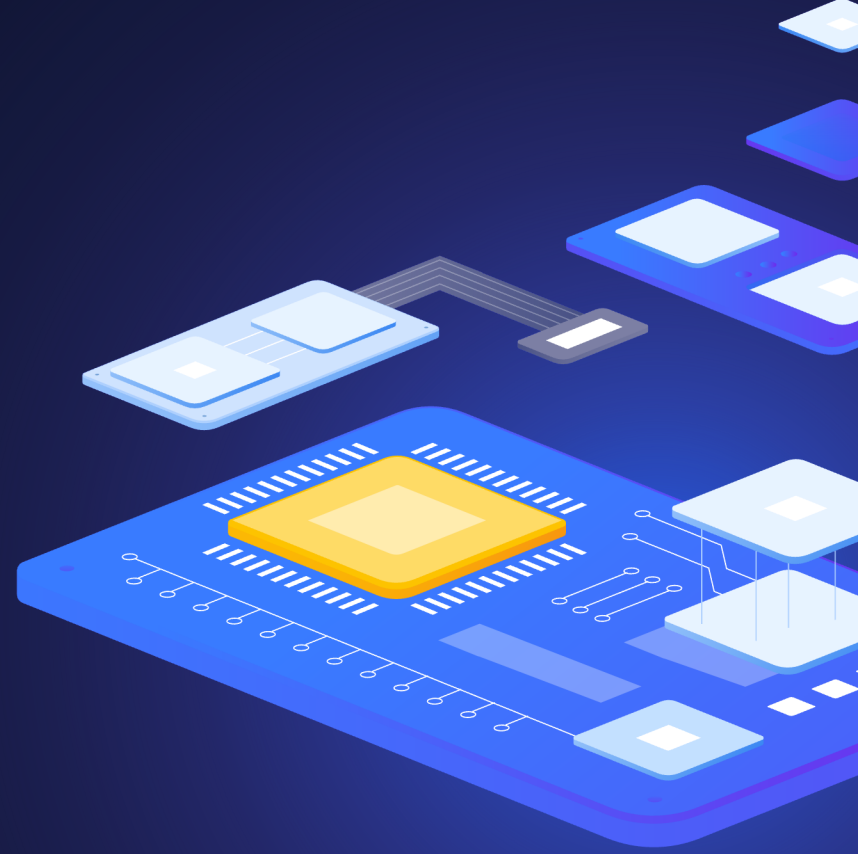
Questions?



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