Monitoring Dynamic Environments

CHECKMK CONFERENCE #5 – MUNICH, APRIL 29, 2019

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Agenda

1. **THE WORLD IS BECOMING MORE DYNAMIC**
2. HOW THE DCD WORKS
3. DCD FROM A USER PERSPECTIVE
4. TUNING THE DCD LATENCY
5. WHY DOES THIS MATTER?

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THE DYNAMIC CONFIGURATION DEAMON

The world is becoming dynamic

Container technology adoption becoming mainstream

Orchestration technology adoption 'fuels' dynamism

Container density per node is increasing

Average container lifetime is decreasing

THE DYNAMIC CONFIGURATION DEAMON

This is why…

We built the Dynamic Configuration Deamon (DCD)

Allows us to automatically adapt check**mk** config also in very dynamic environments

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HOW IT WORKS

High level overview

DCD runs parallel to the CMC

CMC reloads configuration on the fly

Config changes don’t require restart

Remains operational & shifts config to new set-up

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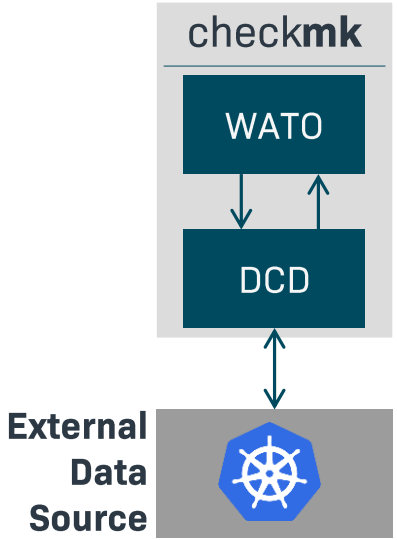
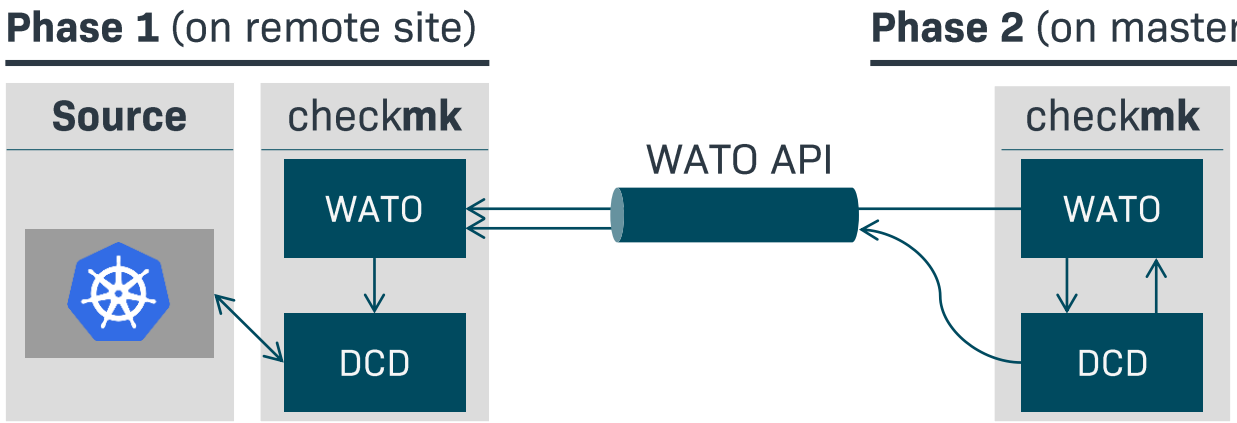
HOW IT WORKS

DCD in single-site monitoring



- DCD configured in WATO
- Collects information from source system (e.g. Kubernetes cluster)
- Activates config changes via the WATO API

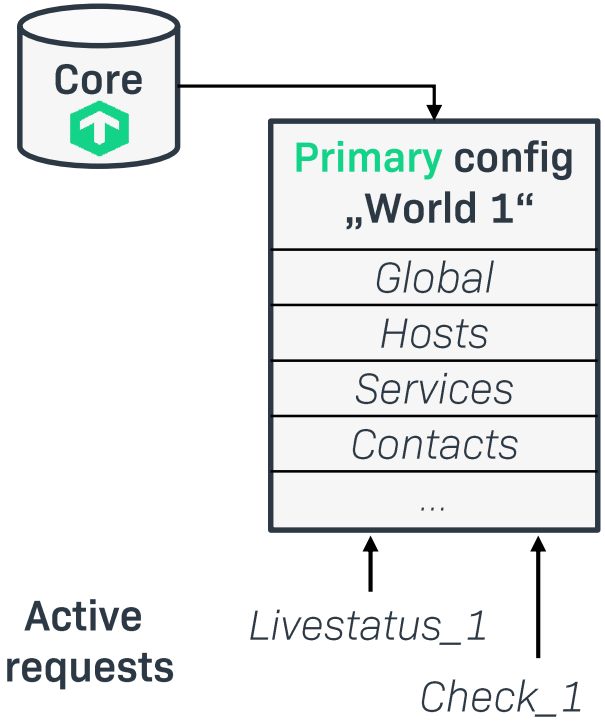
Distributed DCD: 2-phased approach



- Collect information from source system (e.g. Kubernetes cluster)
- Produce data for Phase 2

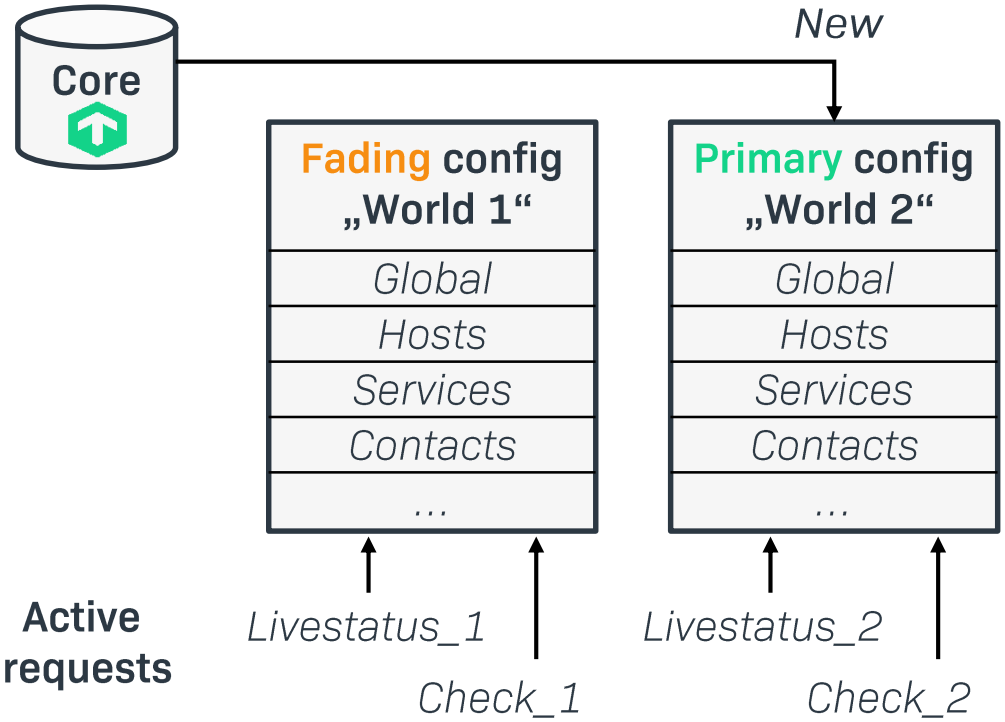
- Collect Phase 2 data from remote site
- Identify deltas & activate necessary changes

Core is configured by config „world“



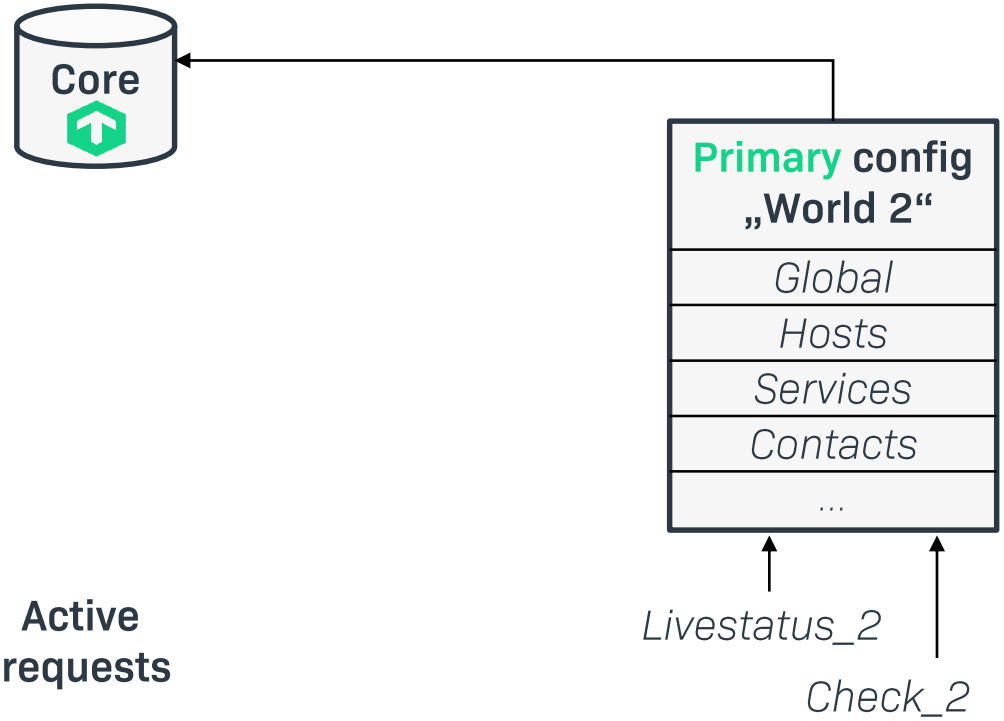
- Config world ‚lives‘ in the Core
- Foundation for Livestatus, checks, …

When Core reloads, new config world is created



- When core reloads, new config world is created
- Basis for all new checks and livestatus connections
- Old world remains active, fades when all open queries have completed

After transition, single config remains



- After old world has faded, only remaining is new world

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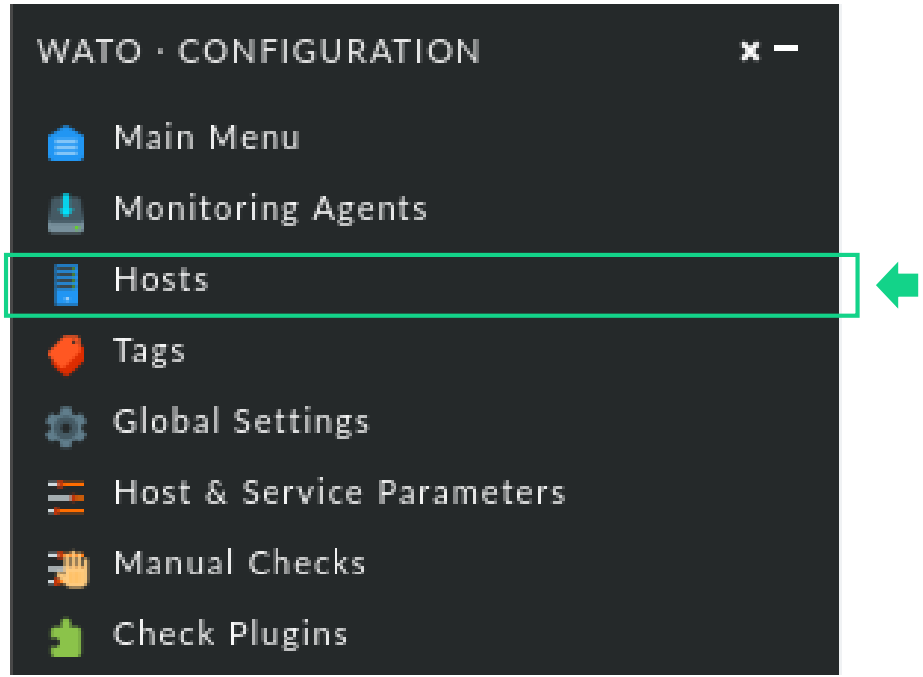
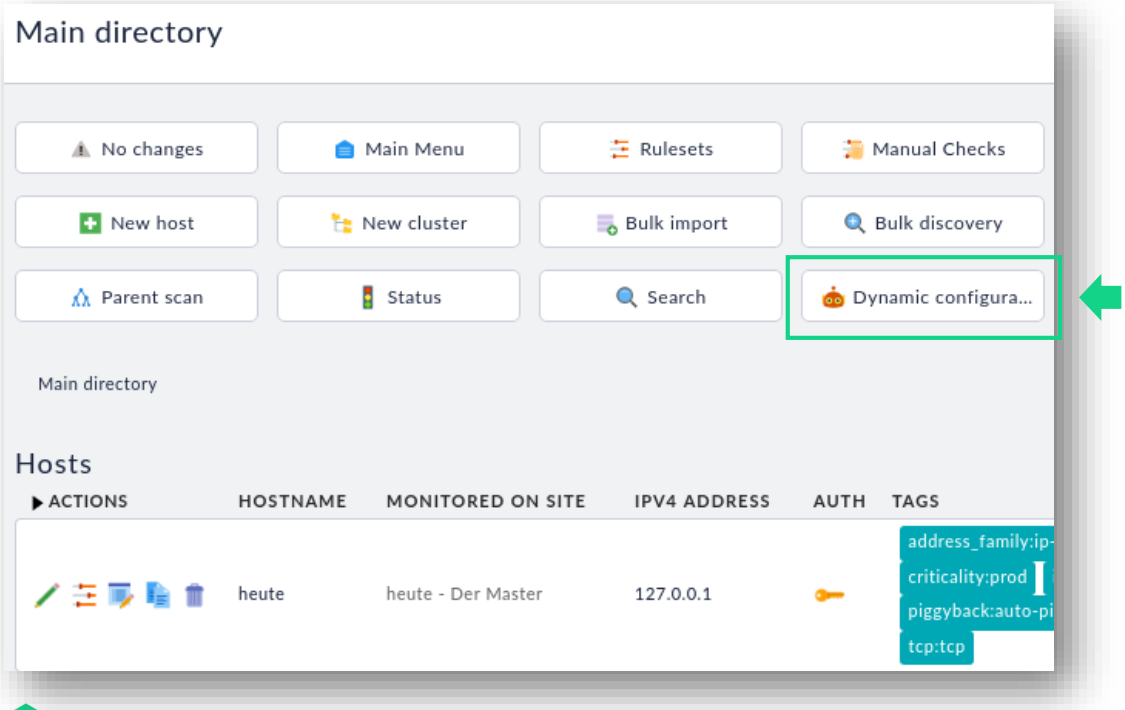
Setting up connections for the DCD



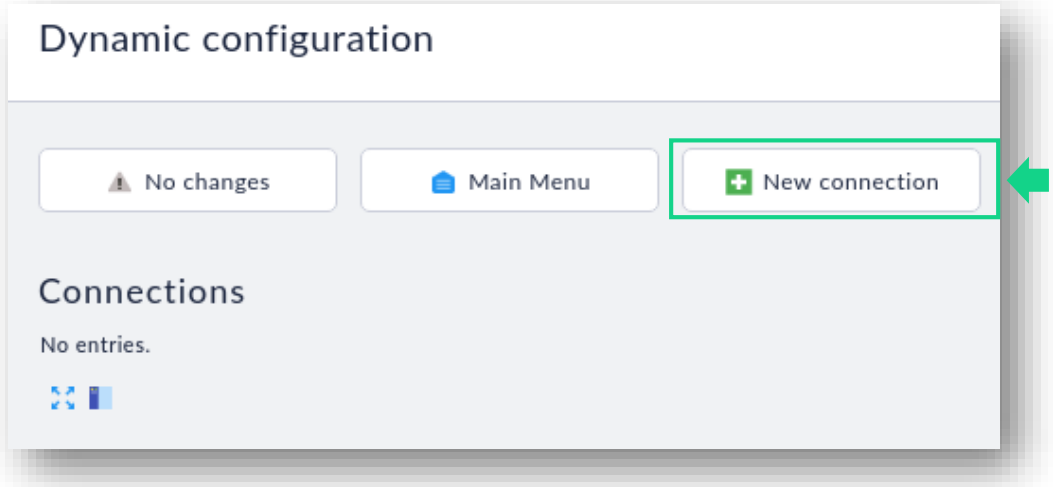
- Dynamic Config connections are set up under WATO → „Hosts“

Setting up connections for the DCD



- Configuration in the check**mk** GUI under „Hosts“ → „Dynamic Configuration“

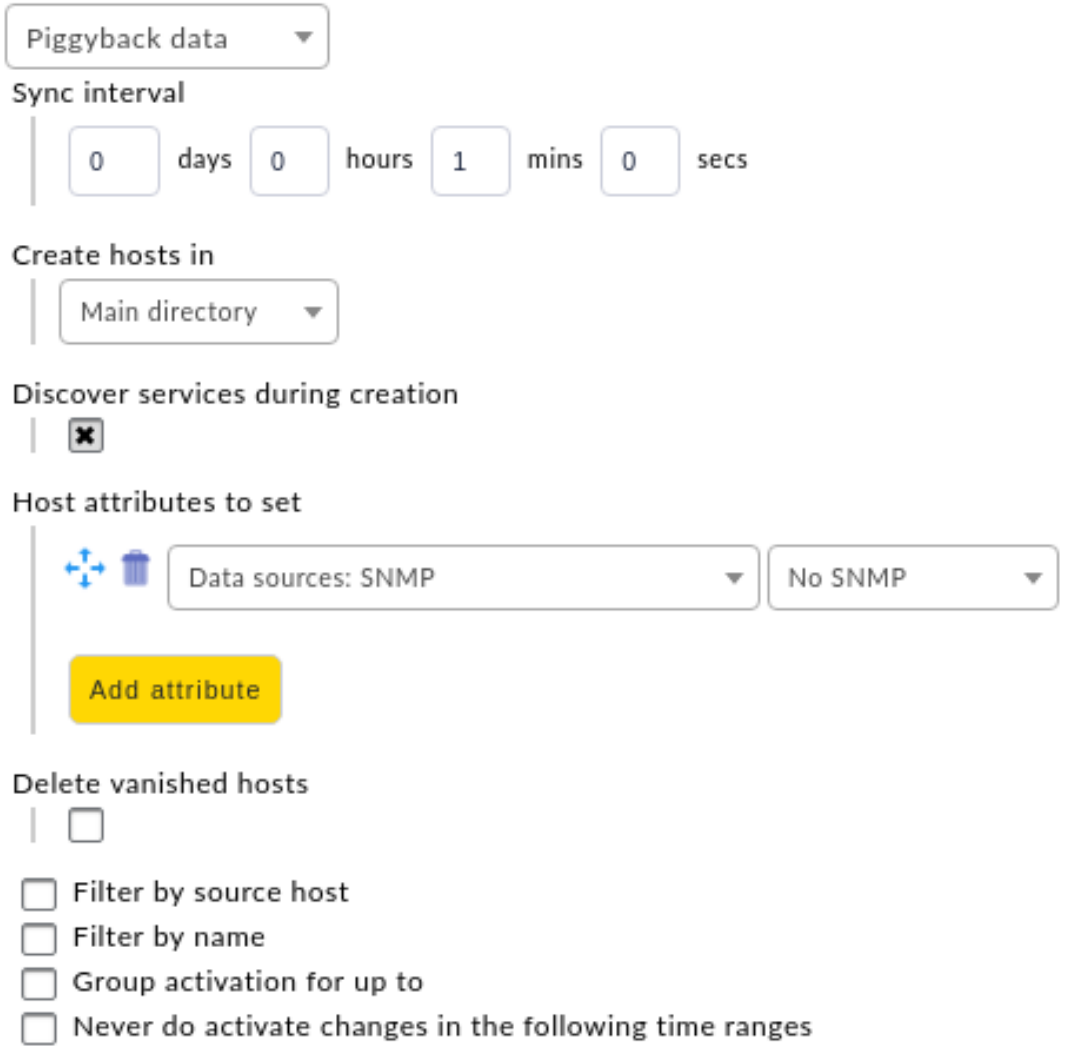
Setting up connections for the DCD



- Set up a „New Connection“
- Each connection configurable to fit need

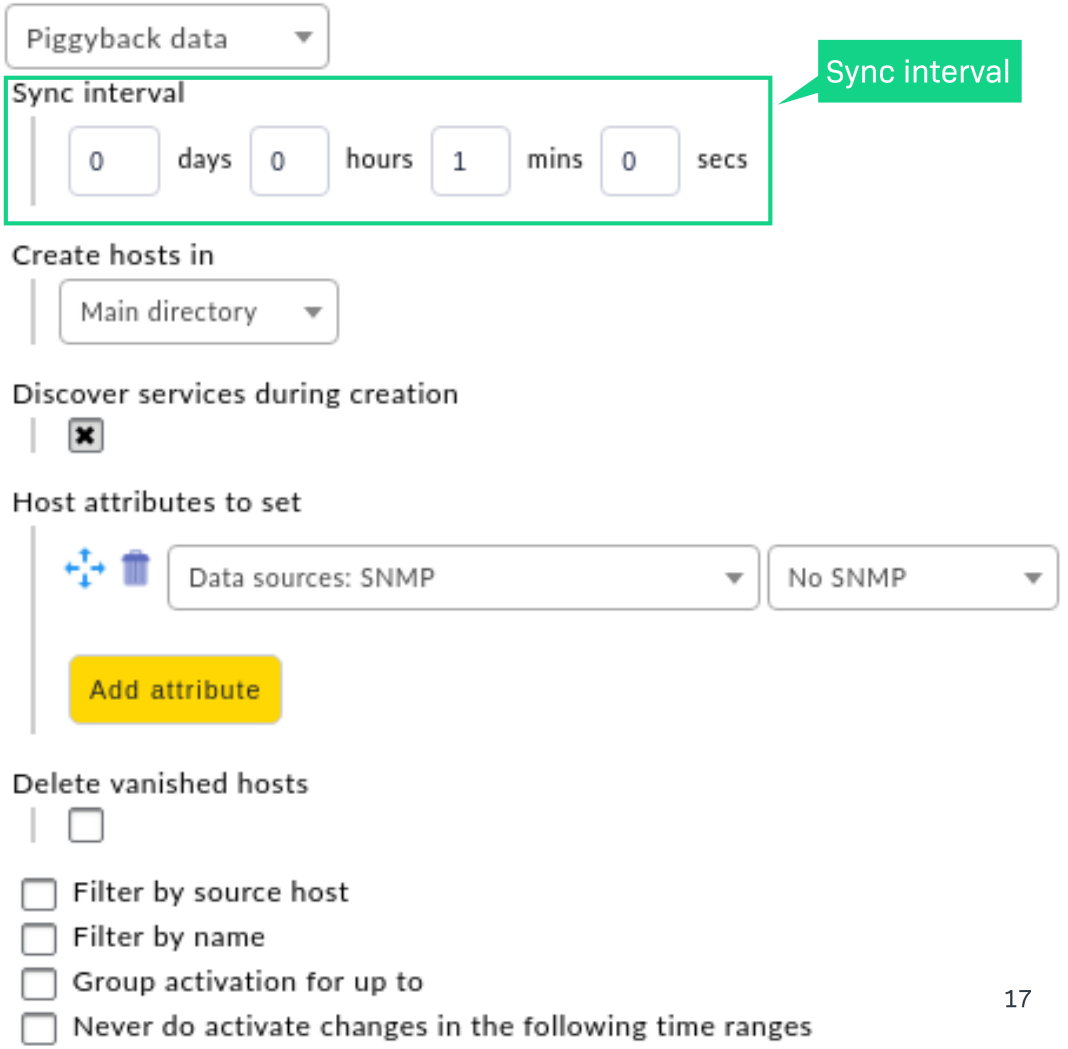
Configuring the DCD

- Configuration options



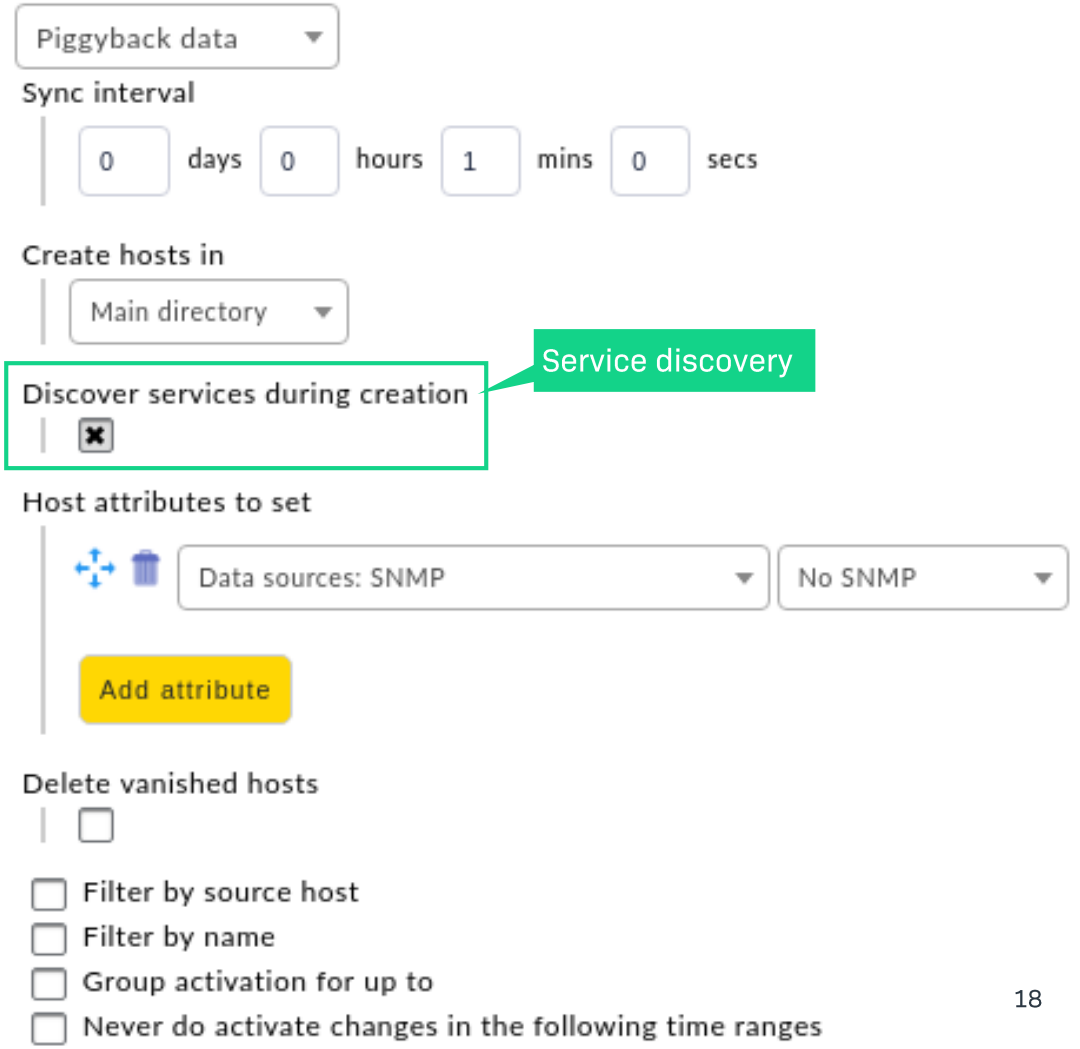
Configuring the DCD

- Configuration options
  - Sync interval to read Piggy-Back data



Configuring the DCD

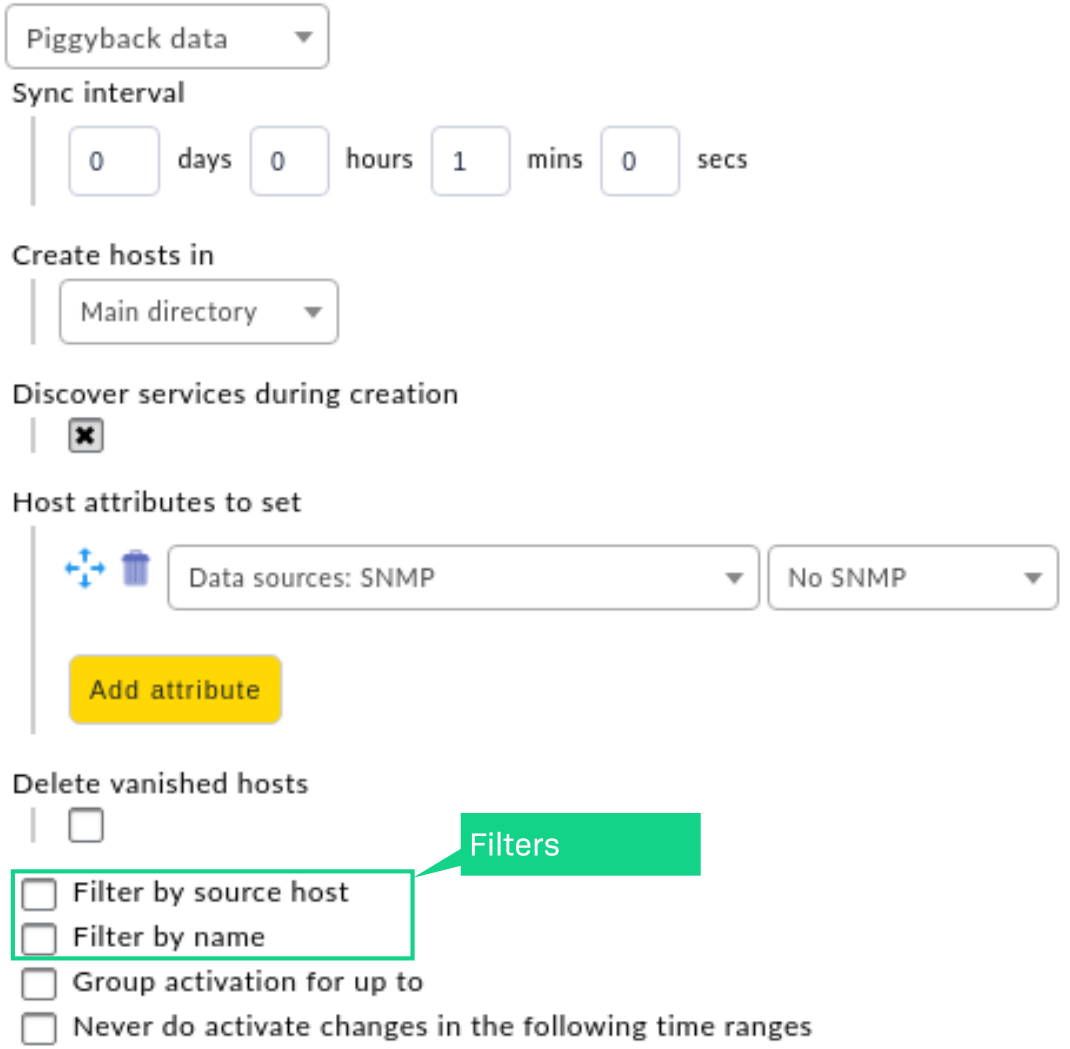
- Configuration options
  - Sync interval to read piggy-back data
  - Automated service discovery



DCD FROM A USER PERSPECTIVE

Configuring the DCD

- Configuration options
  - Sync interval to read piggy-back data
  - Automated service discovery
  - Label-based filtering of specific data



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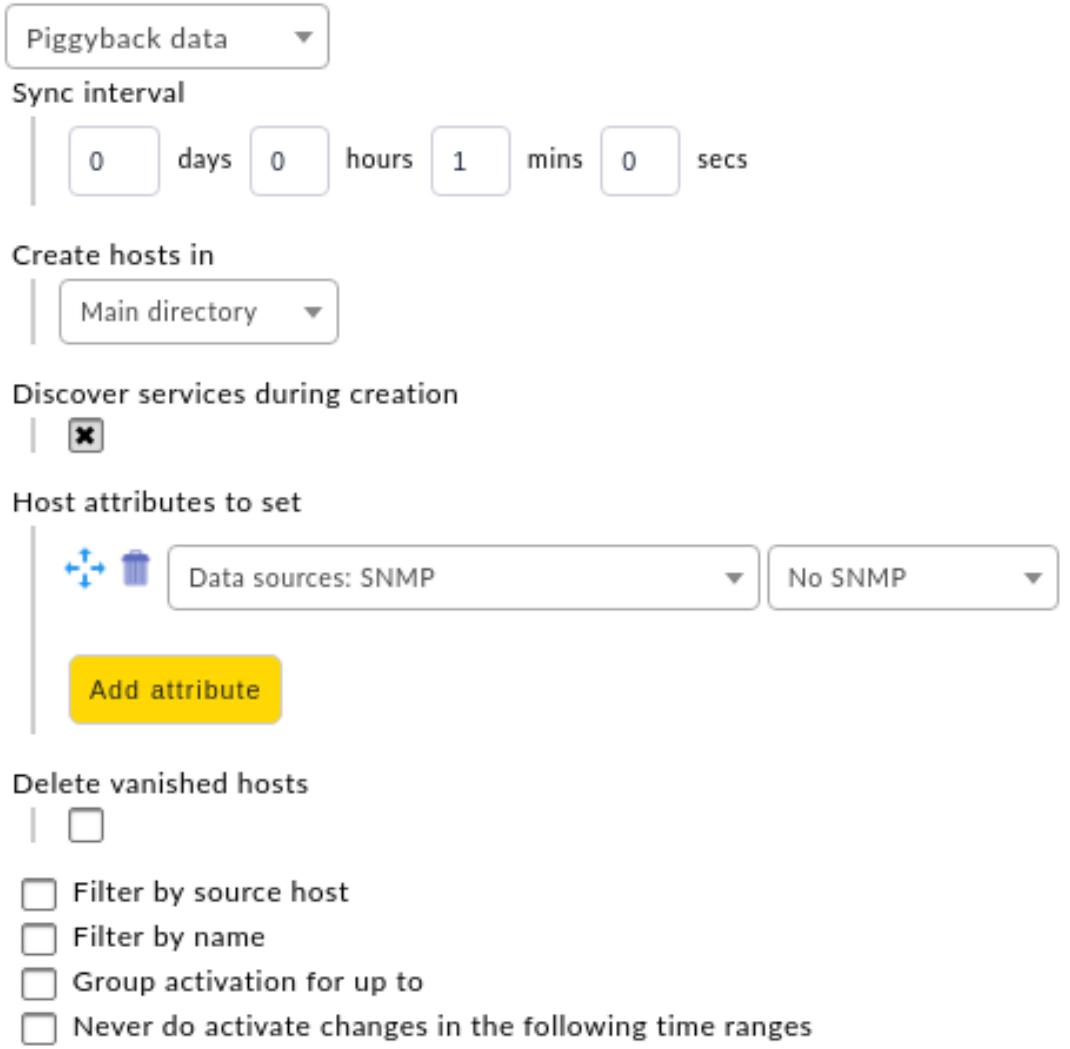
DCD FROM A USER PERSPECTIVE

Configuring the DCD

- Configuration options
  - Sync interval to read piggy-back data
  - Automated service discovery
  - Label-based filtering of specific data
  - And more…



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As many connections as needed possible

Connections

ACTIONS	TITLE	ID	SITE	STATUS
	Docker	docker	heute - Der Master	▼ OK (Started at 2019-04-23 15:22:30, duration: 23.7 ms)

STEP	MESSAGE	STATUS	DURATION	COMPLETION
Phase 1: Executing on 'heute'	Step has been finished	OK	622 µs	2019-04-23 15:22:30
Phase 2: Extract result	Step has been finished	OK	31.9 µs	2019-04-23 15:22:30
Phase 2: Fetch existing hosts	Step has been finished	OK	22.7 ms	2019-04-23 15:22:30
Phase 2: Update config	Nothing changed	OK	20.0 µs	2019-04-23 15:22:30
Phase 2: Activation	No activation needed	OK	2.86 µs	2019-04-23 15:22:30

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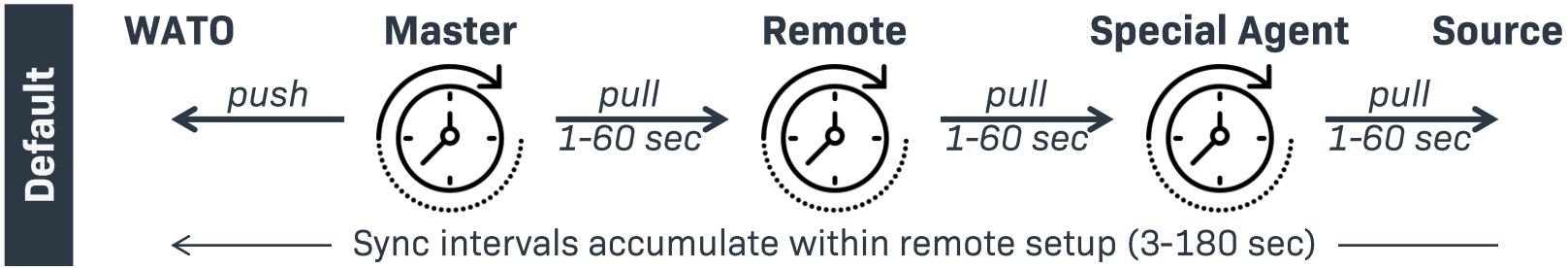
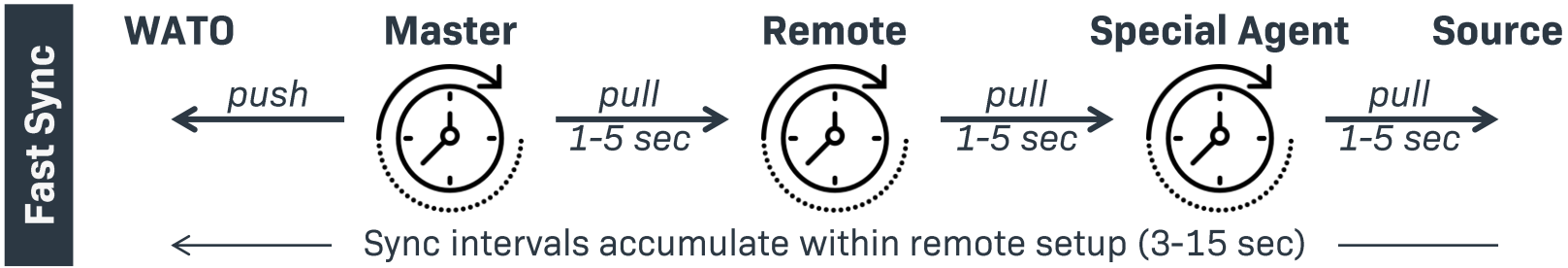
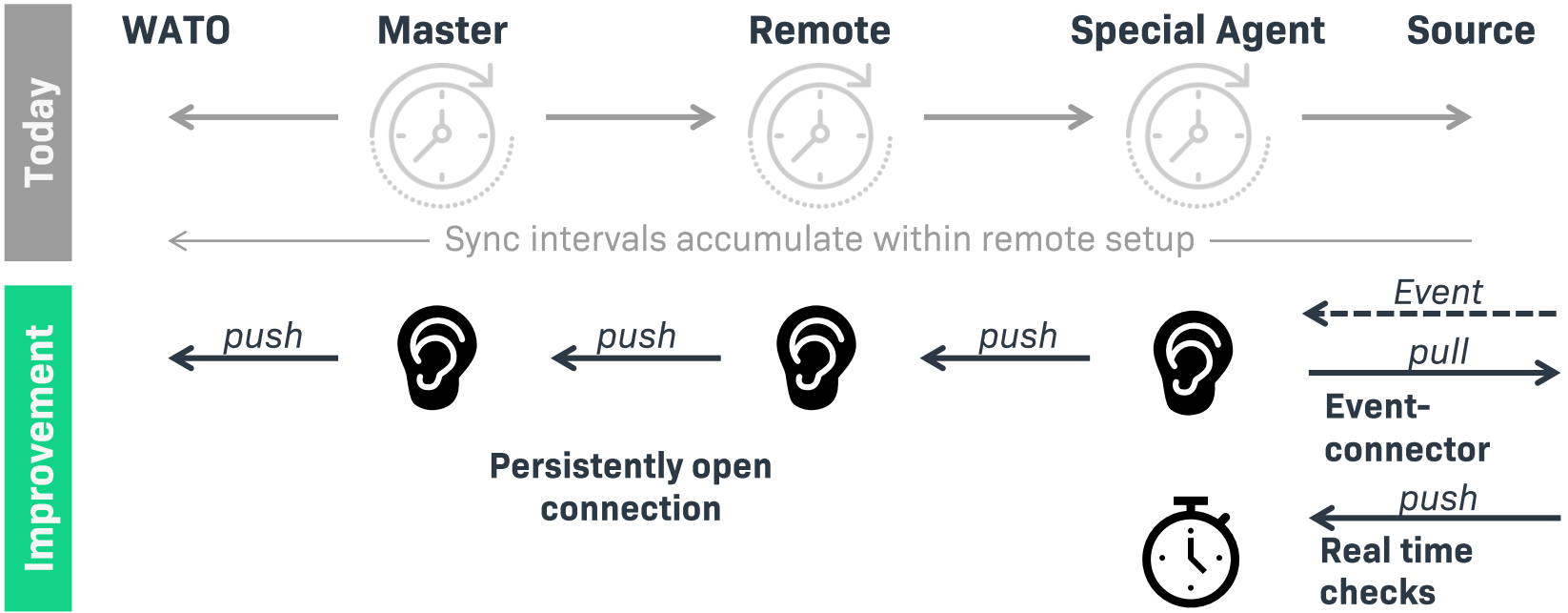
Latency by „cascading“ of default sync intervals



Reduce latency by reducing sync intervals



In extreme cases, further tuning possible



Here we have an Ask to make...

We need **your** help with large scale tests to identify if/where performance optimizations are needed most

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WHY DOES THIS MATTER

Why should I care?

If I am not doing all this modern stuff – is this actually relevant for me?

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WHY DOES THIS MATTER

A clear YES!

- All piggybacked services can already use DCD

Virtual machines: Ask vCenter for VMs

Cloud Services: Changes in resources

And many more...

SAP

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mongoDB.

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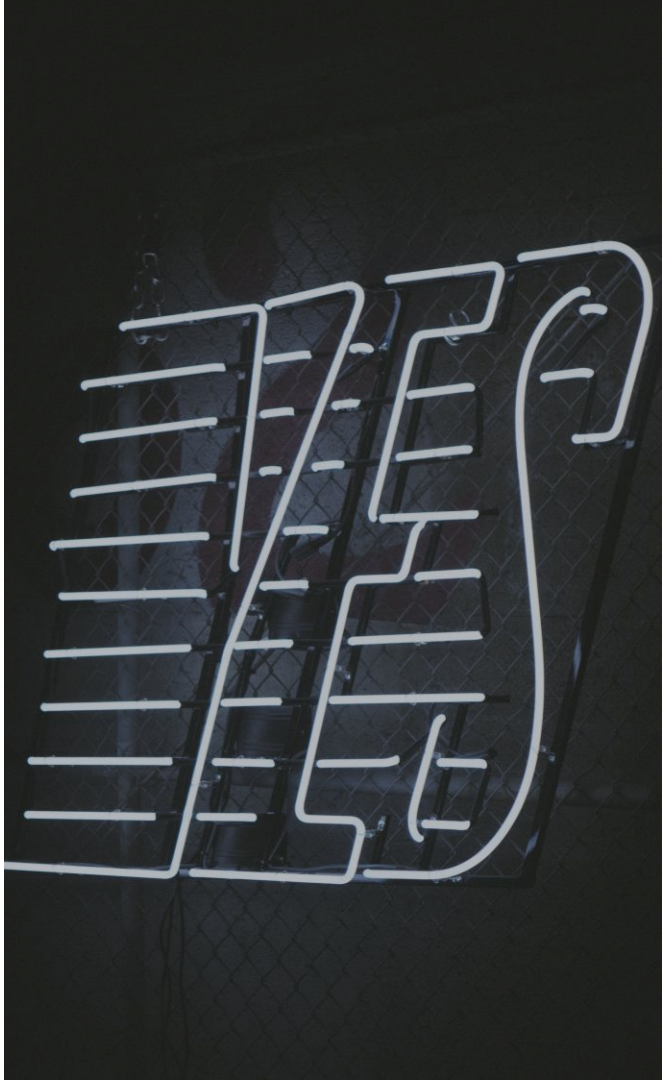

WHY DOES THIS MATTER

And in the future even more!

- Because dynamic config will automate configuration for many different use cases

Network scan: Ask the network for hosts

LDAP: Ask for users or hosts

CMDB: Ask for changed config mgmt

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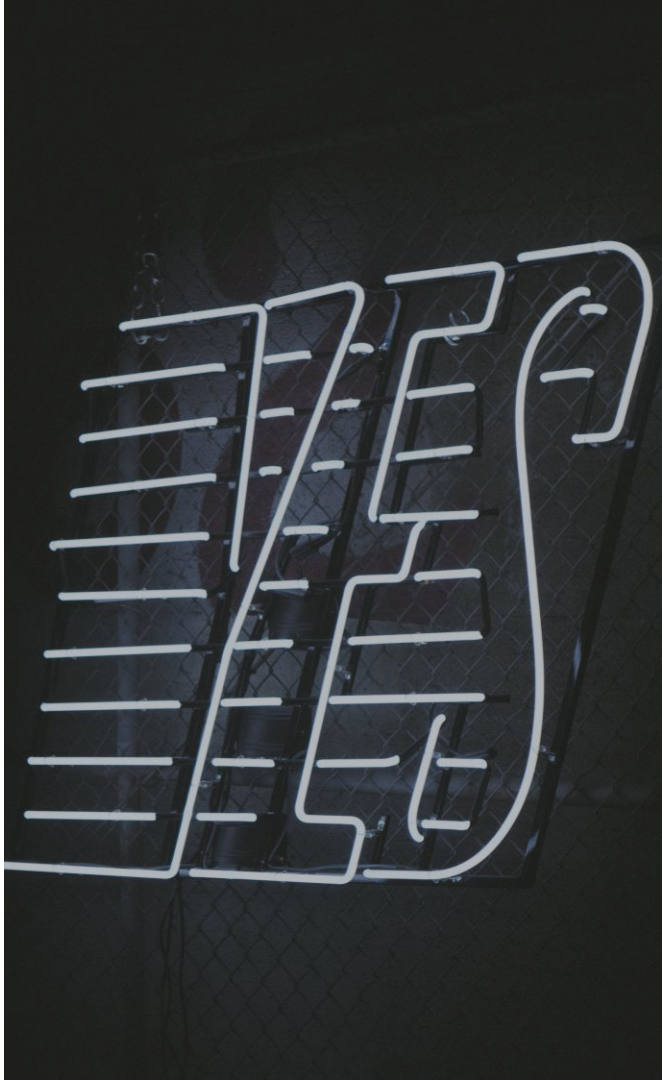

Thank you!

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