



API Gateway

Whats New in 9.3

A CONVERSATION WITH AARON FLINT ON FEBRUARY 7, 2018

February 7, 2018



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Highlights and focus

Make improvements to:

- **OPS UX:** easier to deploy and maintain
- **DEV UX:** new and improved policy tools
- **Performance:** throughput and stability

Operational

New Docker container

Flexible, easier to manage container in in CA API Gateway 9.3

Features	Benefits
<ul style="list-style-type: none">Scriptable install & deploymentUpgrade using standard tools	<ul style="list-style-type: none">speed of deploymentintegration with existing CI/CD pipeline
<ul style="list-style-type: none">Enable deployment to PaaS environments	<ul style="list-style-type: none">use industry standard tools to deploy, scale & monitor
<ul style="list-style-type: none">Flexible deployment model	<ul style="list-style-type: none">potential broad environment support, single form factor



Capability	Appliance Form Factors	Container Form Factor
Installation and upgrade	Gateway configuration tools, patcher, OS updates, vmware tools	DEPLOY
Backup and restore	backup/restore scripts, user interaction with OS	DEPLOY
Appliance configurations	NIC expansion, listen ports, firewall rules	ENVIRONMENT CONFIG
Database	MySQL or Derby included and supported	ENVIRONMENT CONFIG



Migration enhancements

- Map by path: migrate between environments using service name and path

```
./GatewayMigrationUtility.sh manageMappings -b bundle.xml -t service -srcPath /folderA/folderB/testService -targetPath /folderA/folderB/folderC/fooService -f resultMappings.xml
```
- map by URI: additional migration by service URI

```
./GatewayMigrationUtility.sh manageMappings -b bundle.xml -t service -srcRoutingUri /testService -targetRoutingUri /fooService -f resultMappings.xml
```

Additional Operational Improvements

3rd party product support matrix:

- IBM MQ8
- MySQL 5.7
- CA SSO 12.7

Platform Modernization

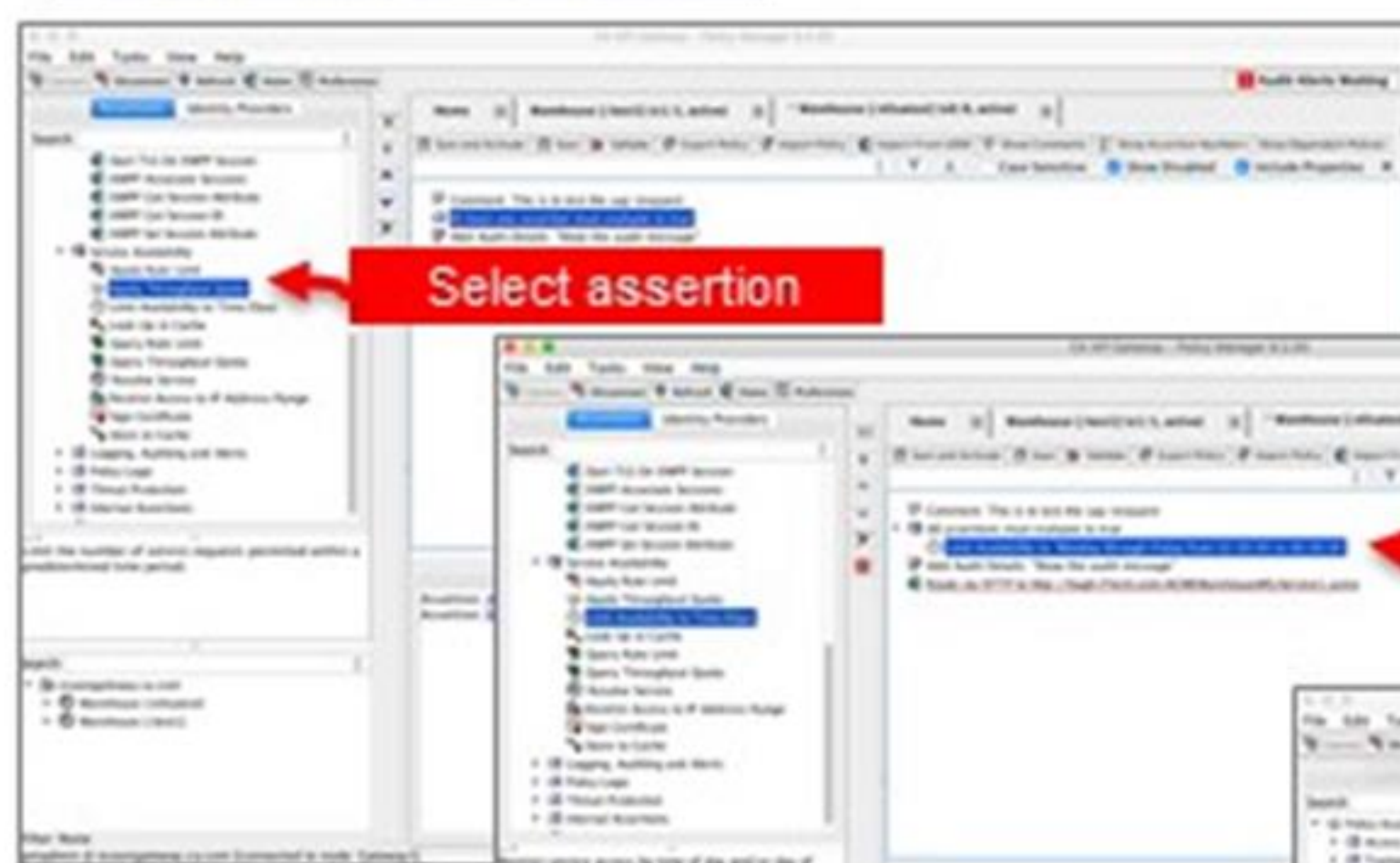
- AMI built for HVM
- ESXi: support for virtual hardware 10,11

Developer Tools

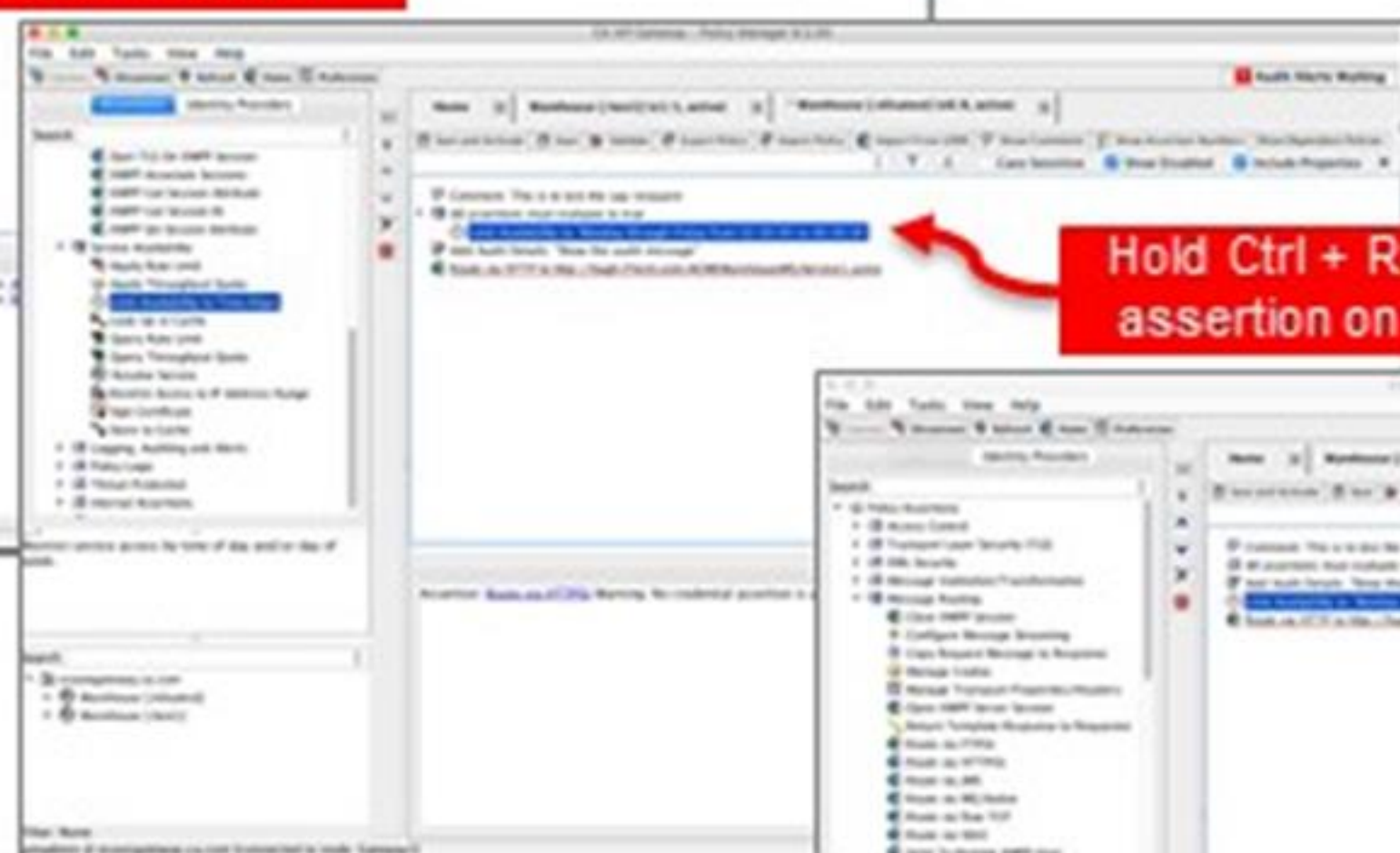
Policy Manager Usability Improvements

Productivity enhancements in CA API Gateway 9.3

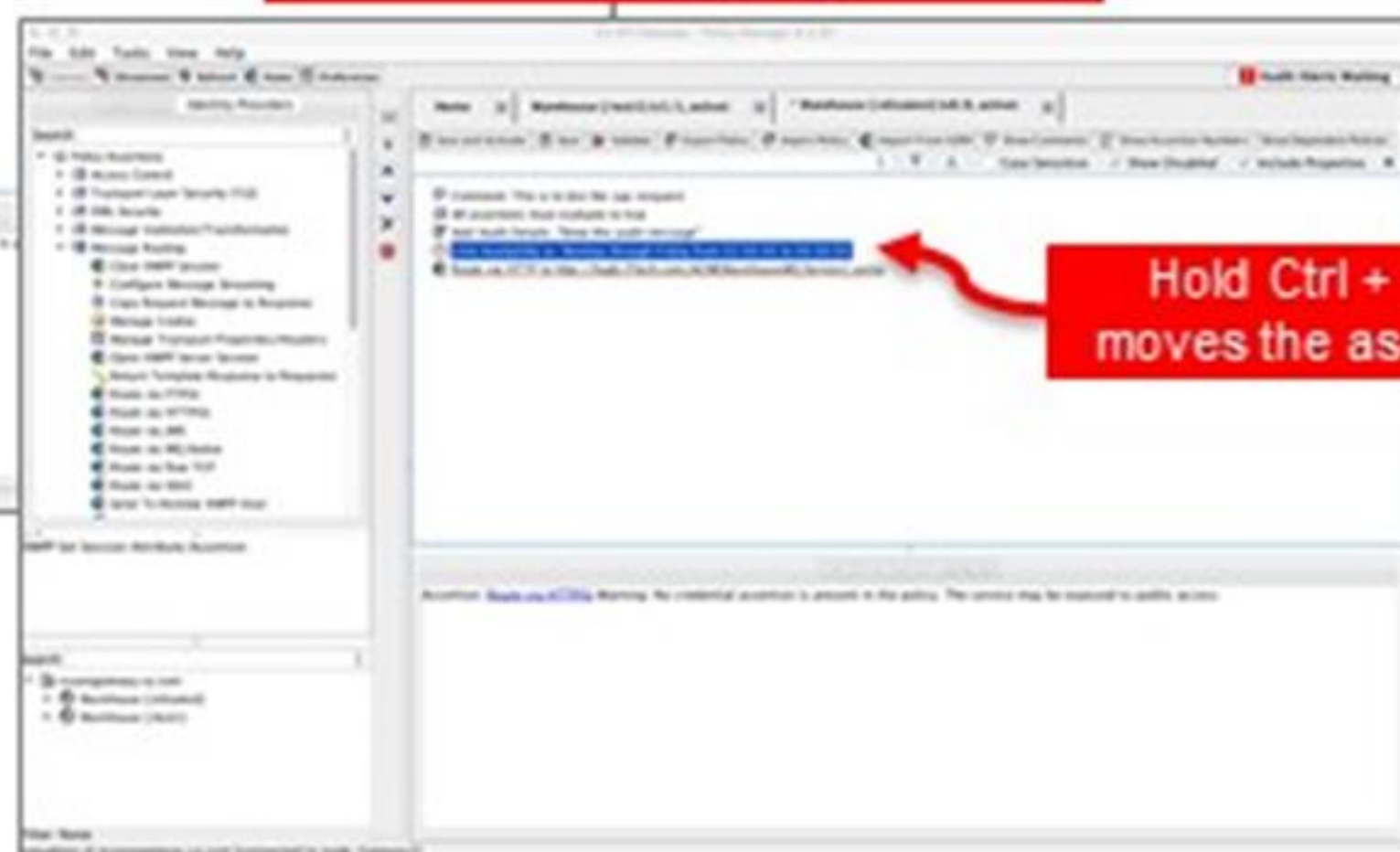
keyboard shortcuts



Select assertion

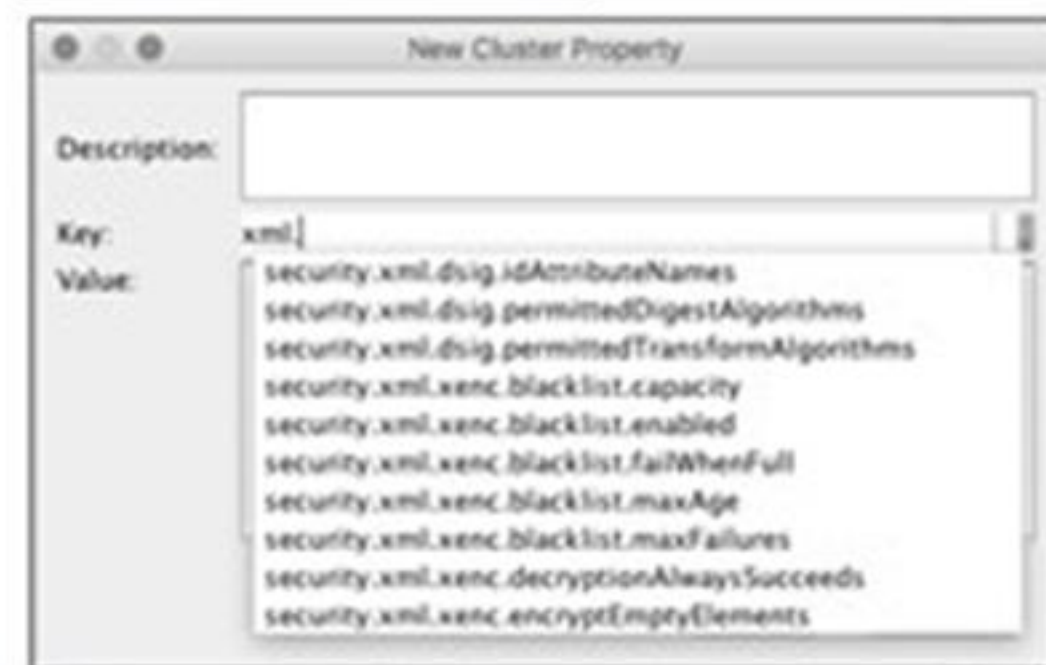


Hold Ctrl + Right Arrow puts the assertion on the policy window



Hold Ctrl + Up/Down Arrow moves the assertion up or down

auto-complete



global settings



LDAP Write

Fill gap in Gateway LDAP interoperability

- supports same LDAP providers as Gateway supports for authentication

Avoid need to use multiple tools single use case

Write LDAP Properties

LDAP Connector:* Tacoma AD

DN:* uid=\$uid,ou=Users,dc=tacoma,dc=com

Changetype:* **Modify**

Attributes and Values:

Attribute	Value
replace	password
password	\$userPass

Prefix:* ldapWrite

OK

OK Cancel

CA Single Sign On (SSO) support for JWT

Authenticate Against CA Single Sign-On Properties

CA Single Sign-On Variable Prefix: * OK

Credentials

☐ Use Last Credentials

☒ Specify Credentials

Supported Credential Types

☐ Username Password Username:

☐ X.509 Certificate Certificate CN or DN:

☒ JSON Web Token (JWT)

☒ Create SSO Token

☐ Use SSO Token from Context Variable:

(Available in SSO 12.8)

Gateway authenticate to SSO using JWT token type

- can be constructed on the Gateway (from another token type) in policy
- can be passed in from requesting application

Additional Functional Extensions

JSON Schema v4

- support for v4 keywords and validation
- errors returned via failure code to policy

Improved JSON Path

- consistent, repeatable results for ordering
- support compression

Performance



New Circuit Breaker Assertion

Don't attempt to do something that you know hasn't been working ...

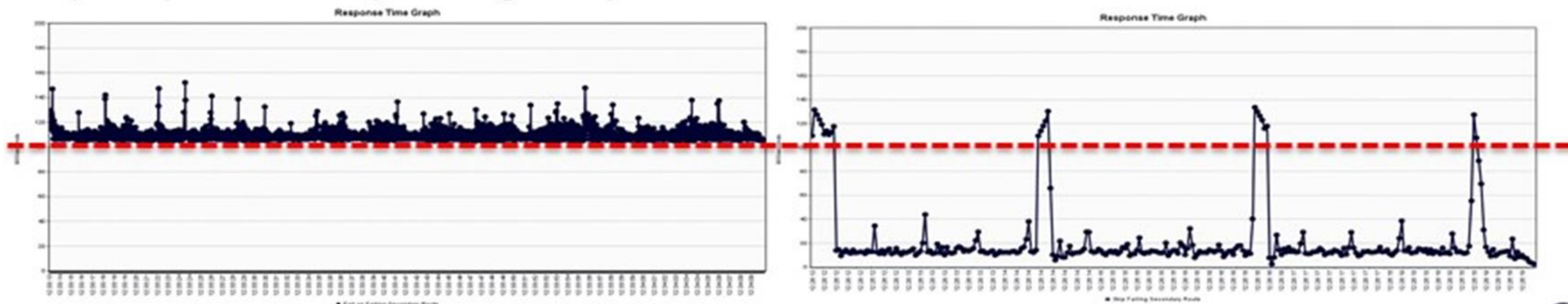
Problem: an unresponsive or slow backend service can degrade the performance of all services on a Gateway

Solution: fail fast, and don't attempt to do something that you know hasn't been working

"[W]rap a protected function call in a circuit breaker object, which monitors for failures. Once the failures reach a certain threshold, the circuit breaker trips, and all further calls to the circuit breaker return with an error, without the protected call being made at all."

– Martin Fowler

Improve performance by avoiding unresponsive or slow backend services



Circuit Breaker

- Require HTTP Basic Credentials
- ▼ Apply Circuit Breaker
 - Request: Apply XSL Transformation
 - Request: Protect Against SQL Attacks [URL Query String + Body]
 - Request: Protect Against Code Injection [URL Path + URL Query String]
 - Write LDAP: Modify
 - Route via HTTP to <http://server.com>

Circuit Breaker Properties

Policy Failure Circuit		Latency Circuit	
<input checked="" type="checkbox"/> Enabled		<input checked="" type="checkbox"/> Enabled	
Max Failures:	5	Max Failures:	5
Sampling Window (ms):	5000	Sampling Window (ms):	5000
Recovery Period (ms):	10000	Recovery Period (ms):	10000
<input type="checkbox"/> Custom Event Tracker ID		<input type="checkbox"/> Custom Event Tracker ID	

OK Cancel

Latency based

- allows the Gateway to “back off” while the slow system recovers

Policy based

- gives administrators indication that something is not working right

Improved performance for existing systems

Continue to improve overall performance of Gateway, based on customer scenarios

- Syslog performance bottlenecks
- MQ Native, JMS throughput improvements
- OS-level changes to improve overall performance

Getting to 9.3

Accelerated Upgrade Process

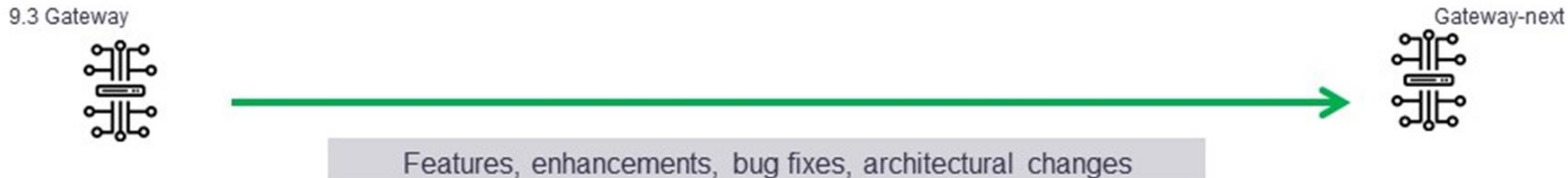
A different way to upgrade the Gateway



saves time and effort!

More Frequent Updates

"Normal" release cycle:

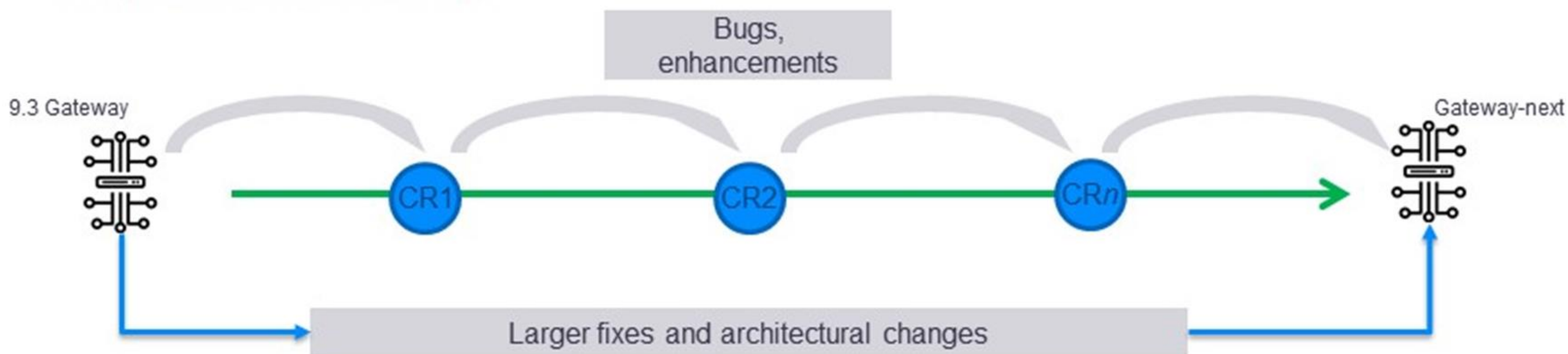


Customer Resistance:

- Gateway releases can be long (often greater than 6 months)
- Scope of fixes can be widespread, introduce lots of changes
- changes in default behavior, regressions

More Frequent Updates

Cumulative Releases:



Benefits:

- Users get higher quality fixes and enhancements to their immediate issues faster
- smaller scope == minimal impact on upgrade

Influencing our roadmap

New ideas?

- Submit your ideas on communities.ca.com
- Vote & comment on ideas that are important to you
- CA Product Management reviews ideas and updates status as they move through the lifecycle
- "Currently Planned" idea status indicates inclusion in Agile Backlog or Product Roadmap

Customer Validation

- Located at validate.ca.com
- Register to participate in:
- Live Demos/End-of-Sprint Reviews
- Private Members Only Online Community
- Product alpha and beta functionality validation.



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Thank You.