

*EMEA DevXchange 2017*

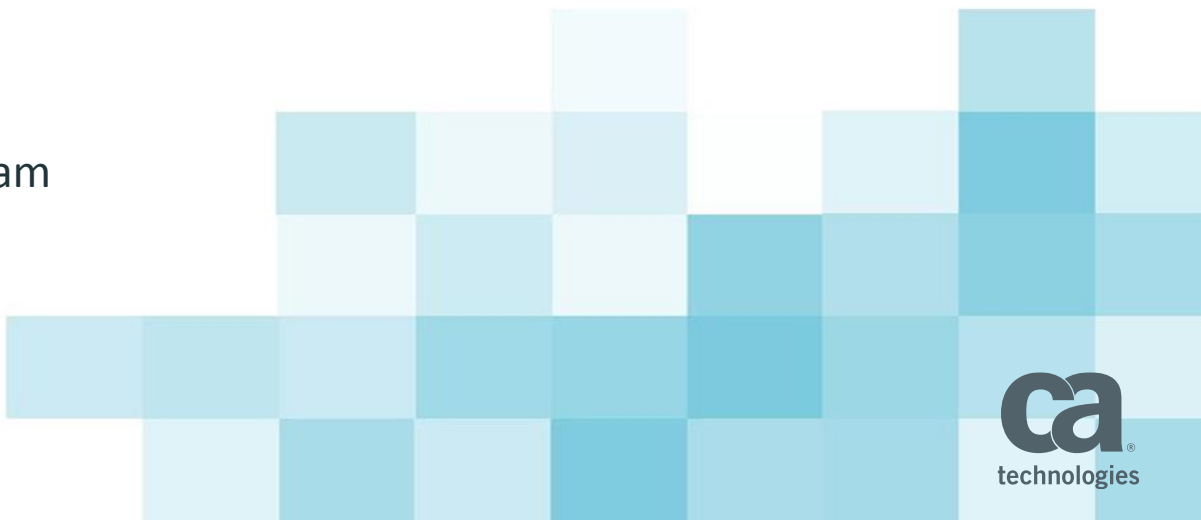
# Tech Talk: Use Zero-Config Agents in CA APM Command Center

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CA Technologies

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# Zero-Config Agent

## *Vision*

*Goal of this Initiative is to offer maximum value in shortest time possible without requiring*

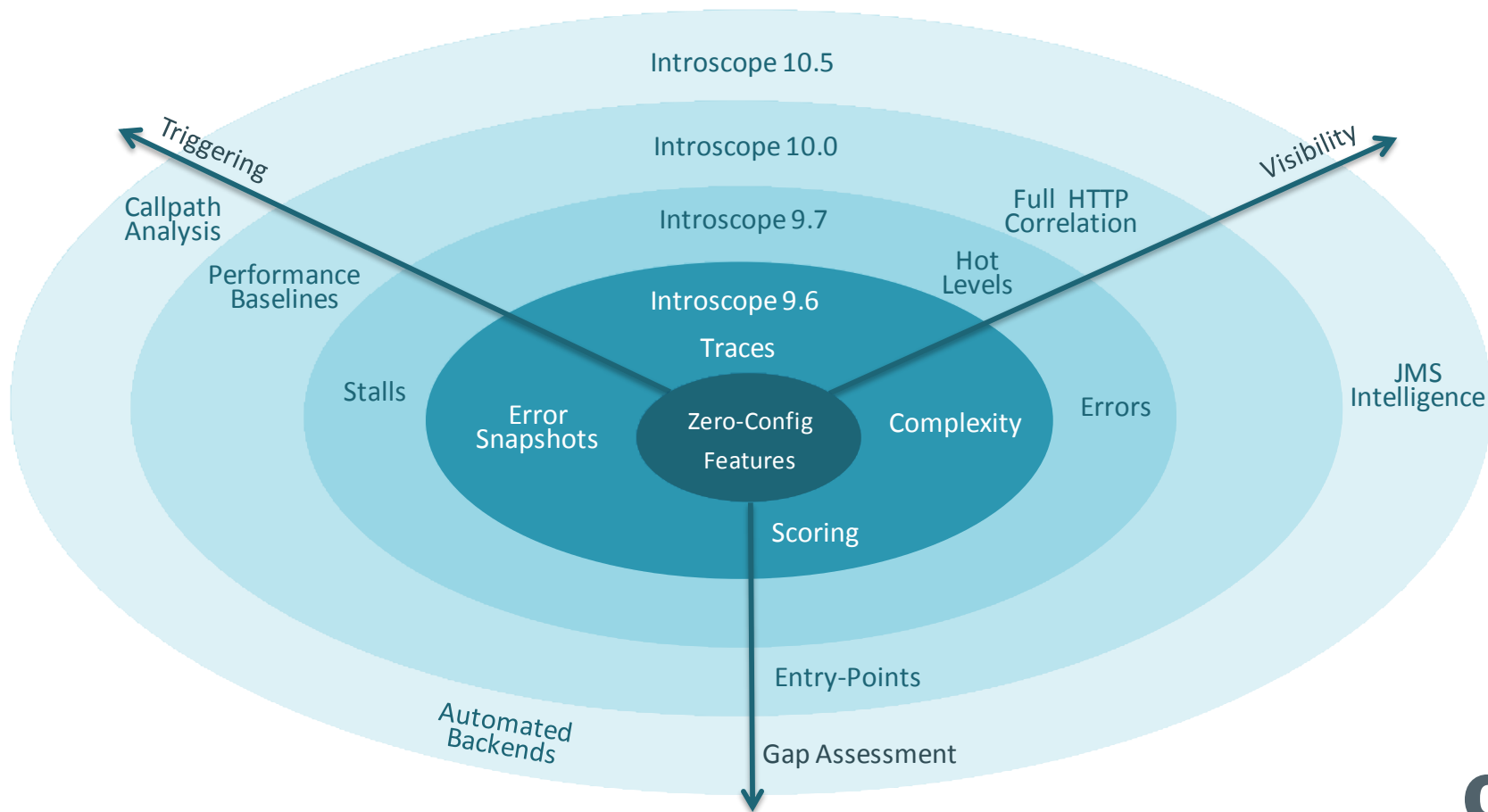
- *Deep knowledge of the APM/Agents - **Zero configuration***
- *Deep knowledge about the Application – **Smart Agent***
- *Zero manual steps to Install/Deploy – **Simplified Management***
- ***Adaptive agent** to runtime application performance conditions*

# Zero-Config Defined

*The next smart agent*

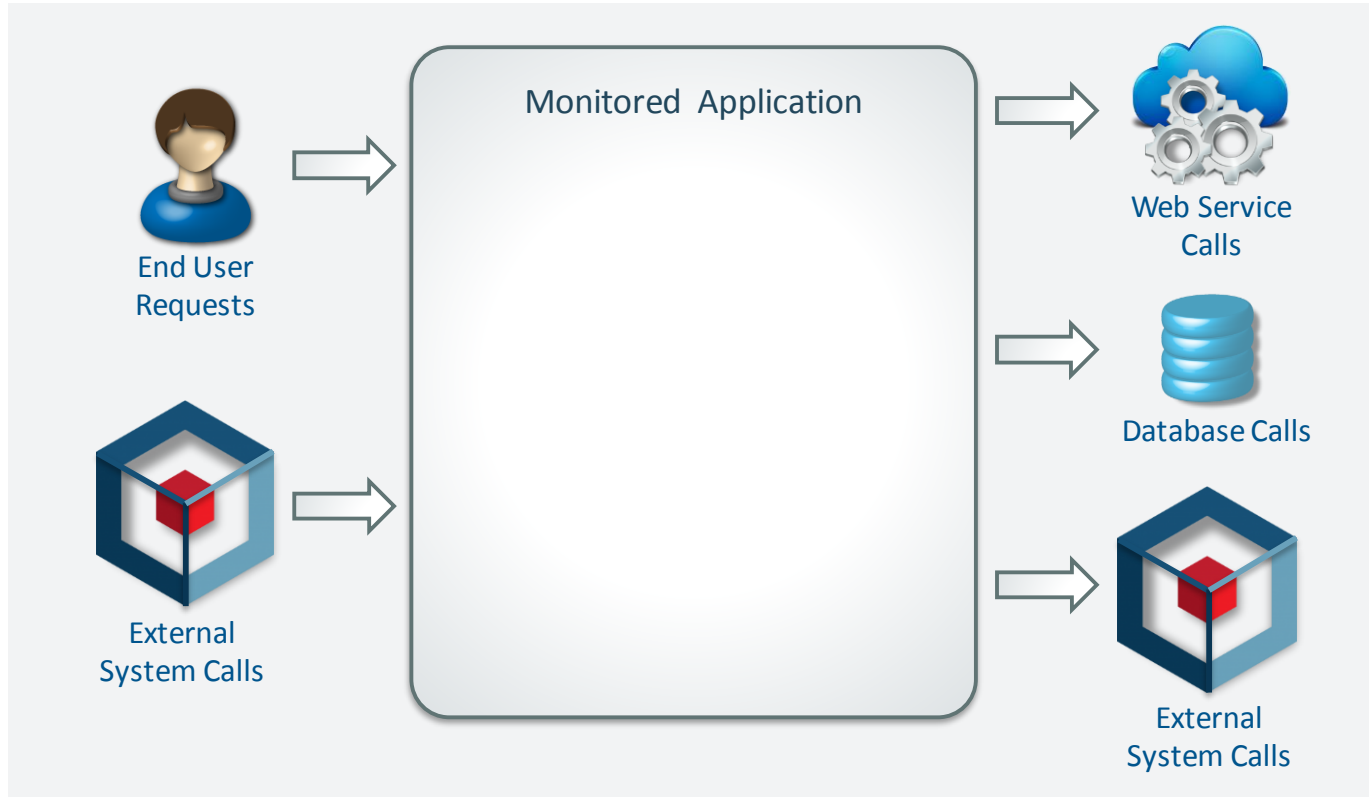


# Agent Innovation – Evolution

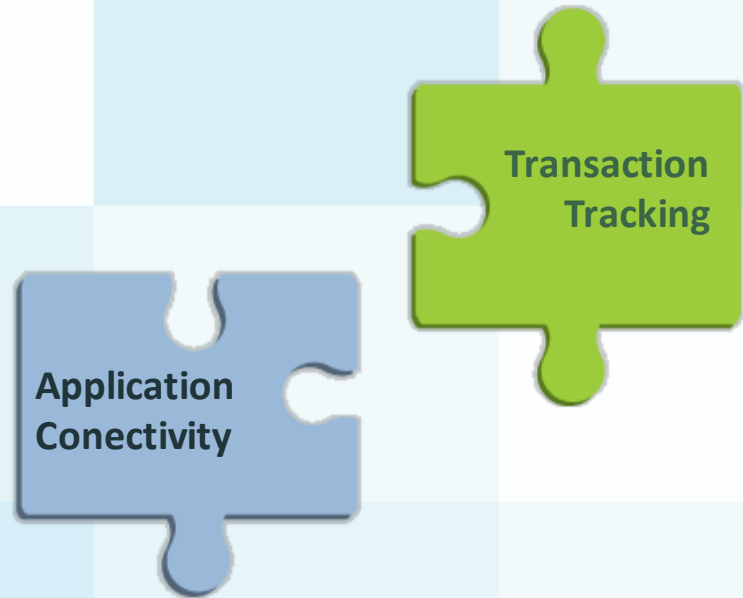


# Zero-Config Defined

*The next smart agent*



# Application Connectivity / Transaction Tracking



# Application Connectivity

## Monitoring requirements

Strong requirement to track communications for

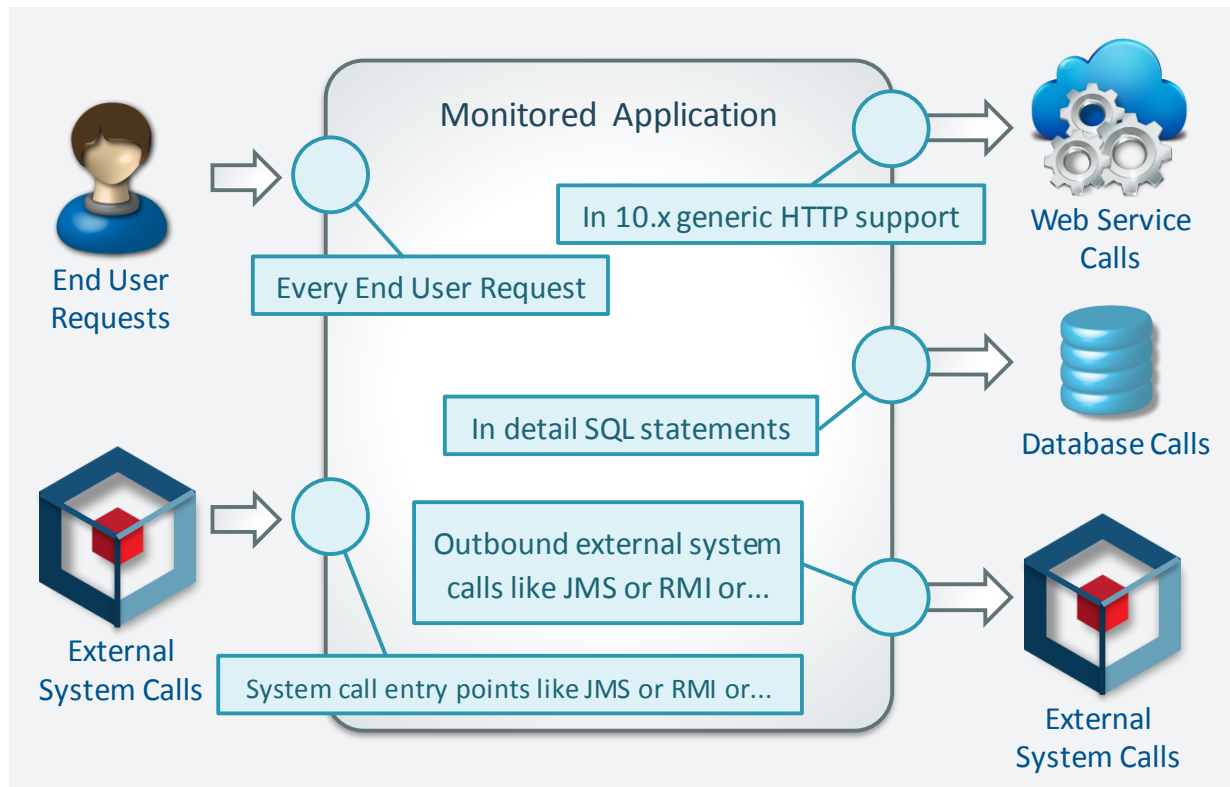
- End to End Transaction Traces
- Build a transactional map
- Track and report error transactions
- Distinguish between in-house and outside-world problems
- Key KPI monitoring

# Application Connectivity

## Monitoring requirements

### New key features:

- Generic HTTP support in 10.x agent
- Generic JMS support in 10.3 agents



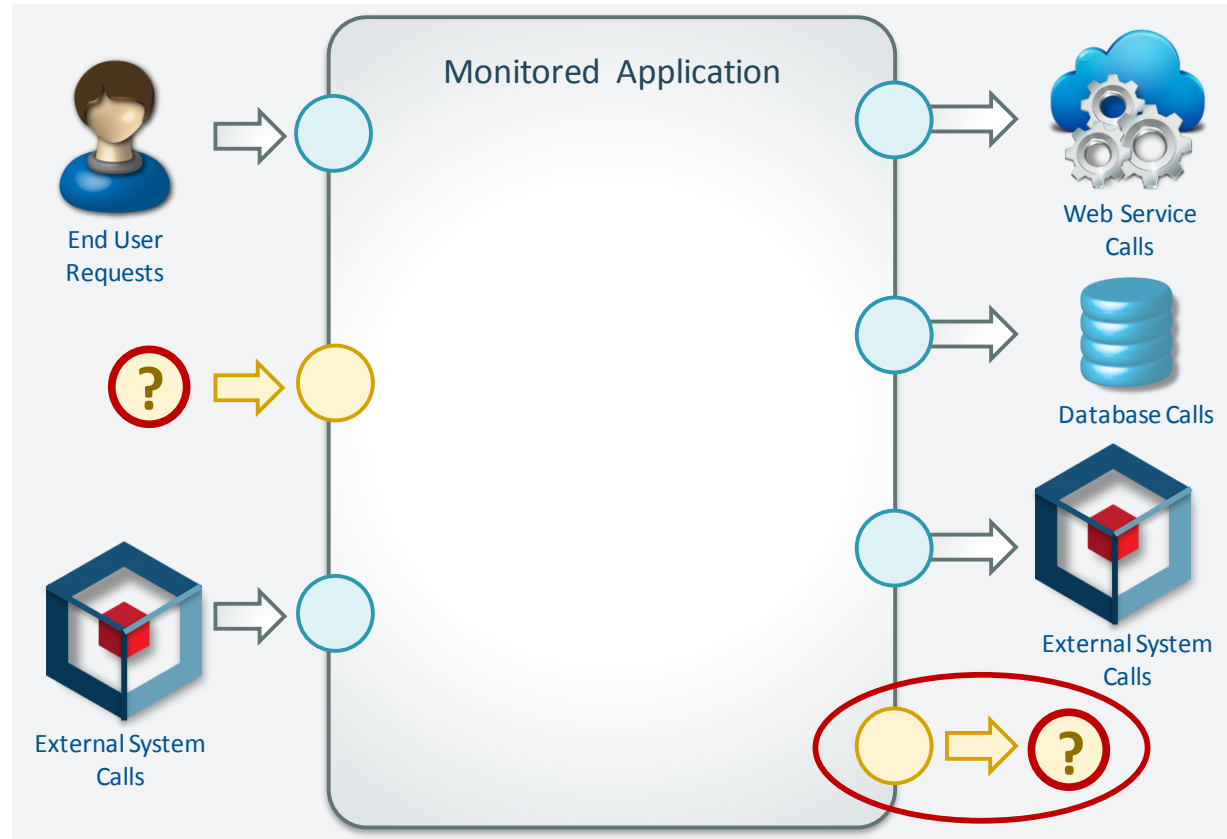


# Application Connectivity

## Automated Frontends and Backends

New key features:

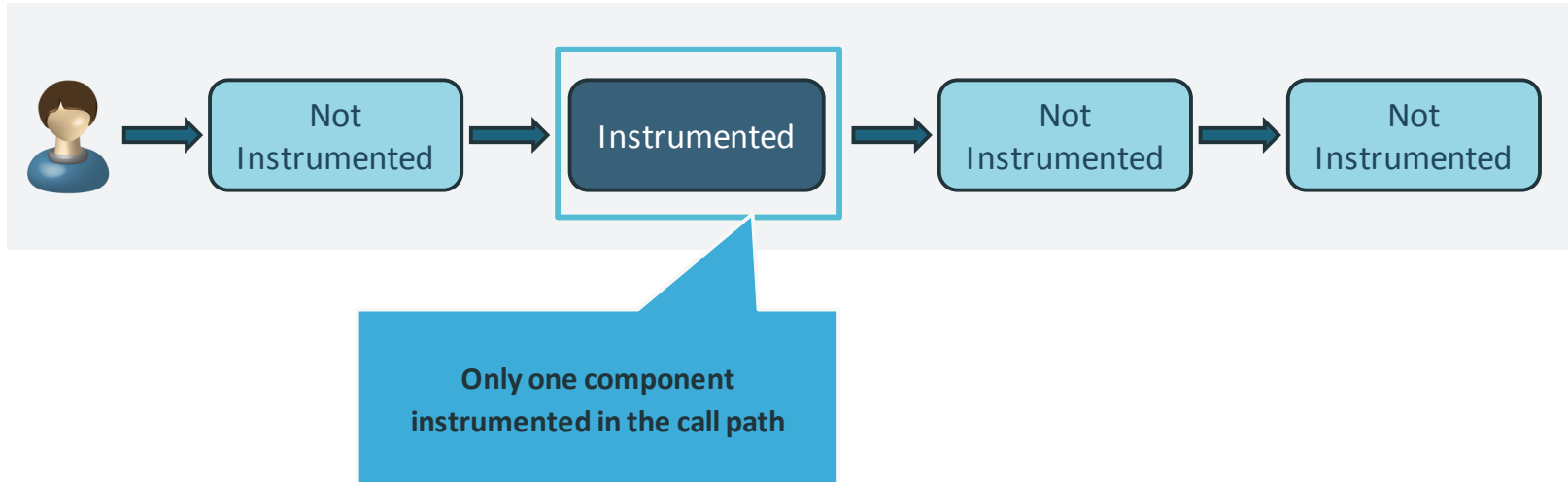
- Unknown transaction outbound calls



# Agent Innovation

## Backend Discovery

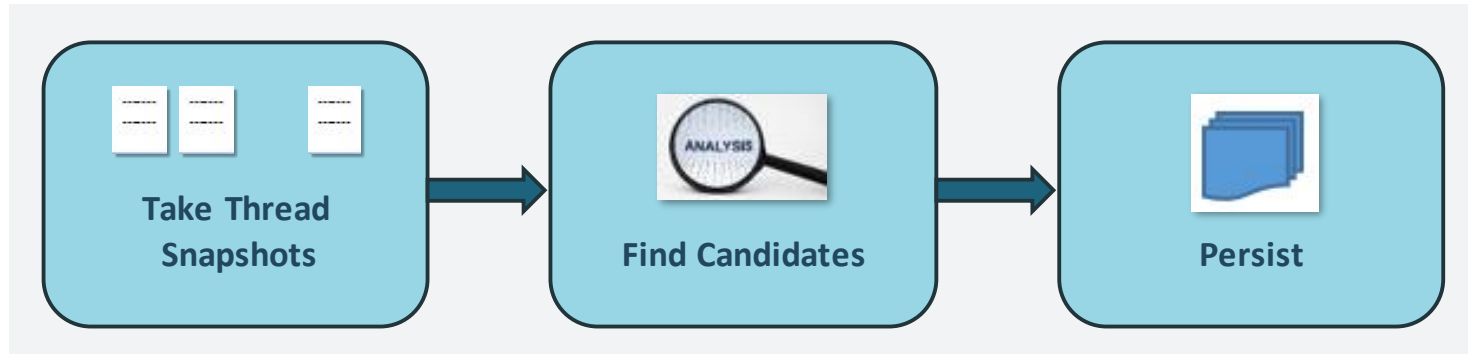
- Call path with partly instrumented transactions



# Agent Innovation

## Automatic Exit Point Detection

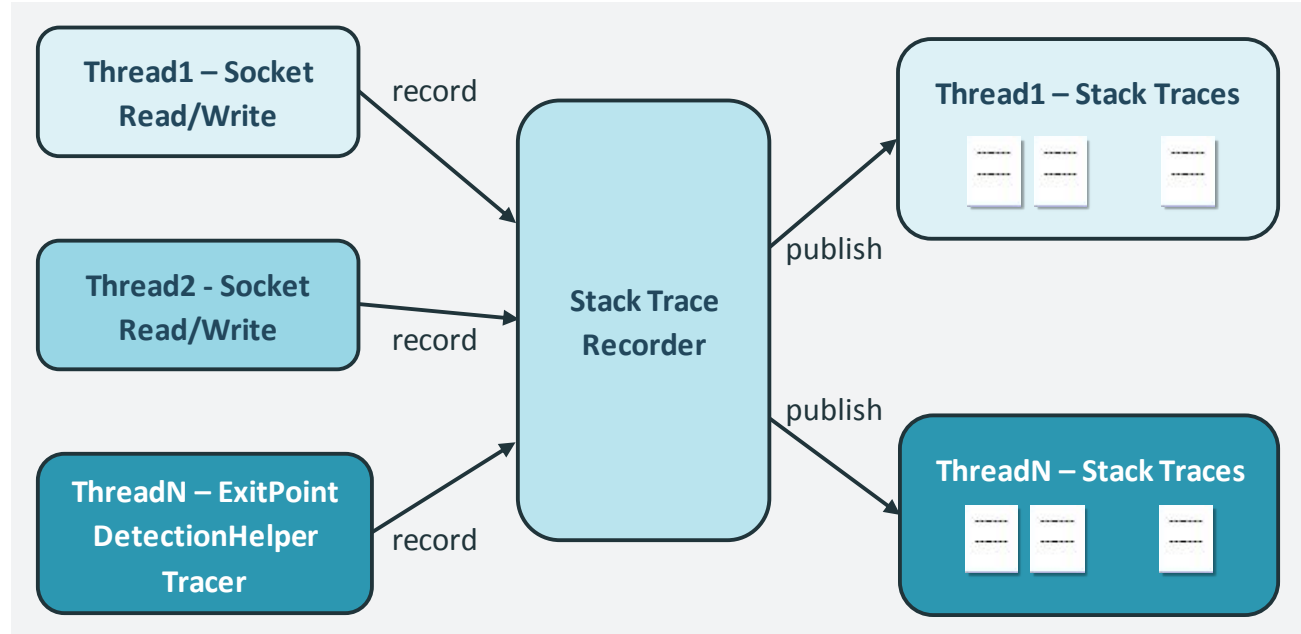
- A three steps process



# Agent Innovation

## Automatic Exit Point Detection

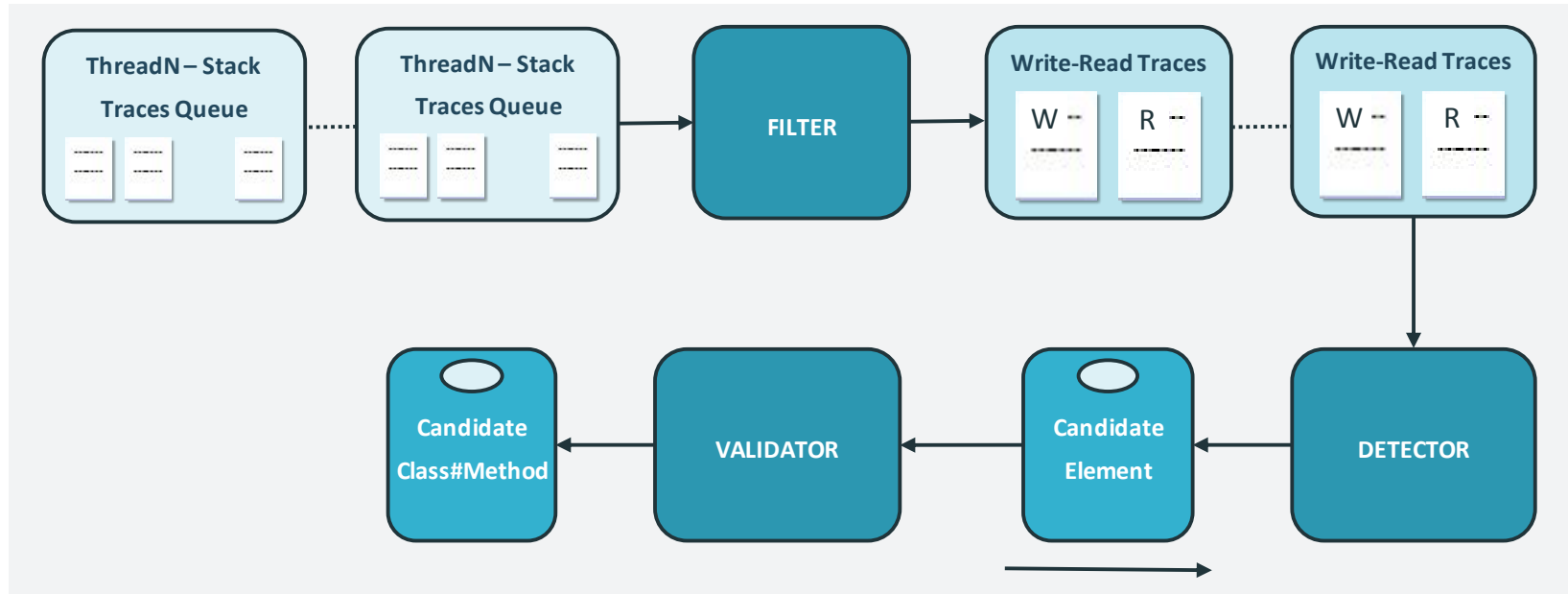
- Threads are collected on a socket "touch"
- Published for further processing



# Agent Innovation

## Automatic Exit Point Detection

- Identification of candidates



# Agent Innovation

## Automatic Exit Point Detection

- Identification of traces based on similarity matching
  - Instrumented Classes
  - Call path proximity matching

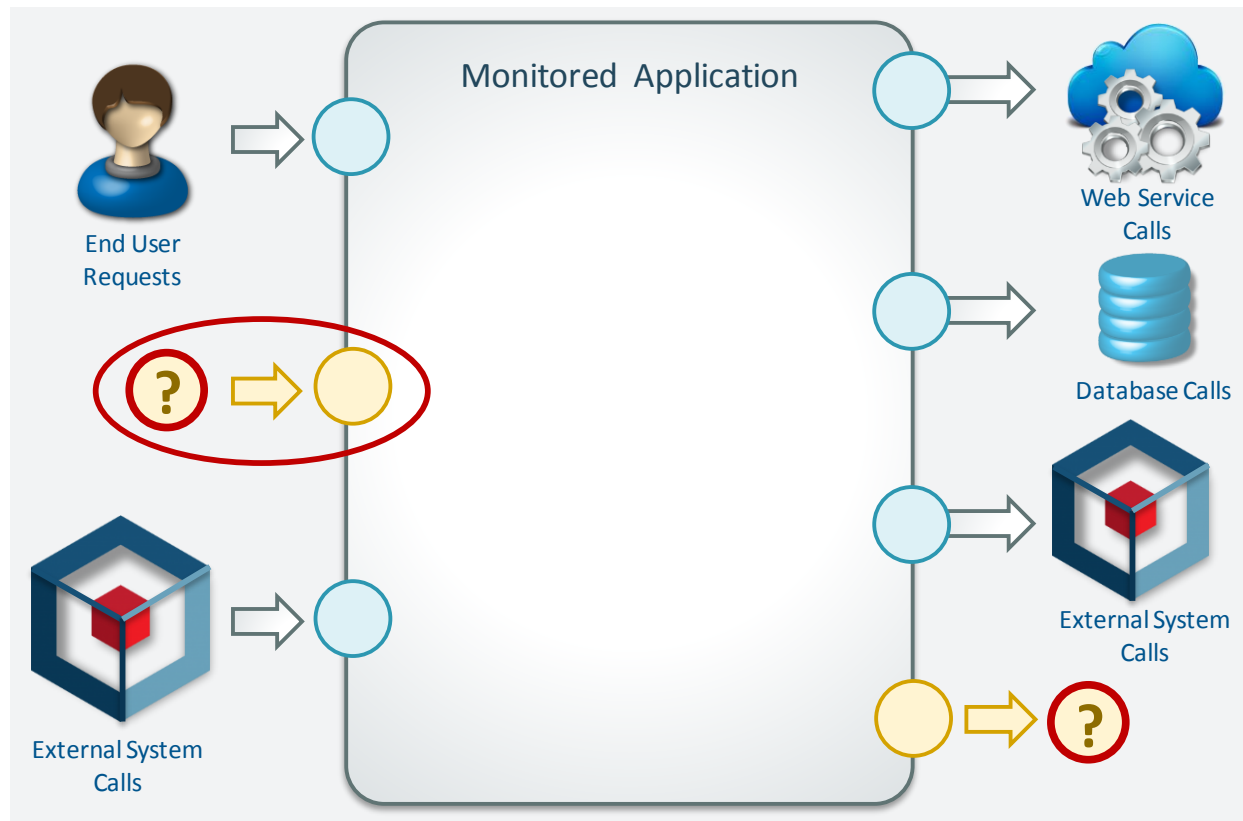
SocketOutputStream.write	SocketInputStream.read
APSIHighPerformanceNew.write	APSIHighPerformanceNew.read
BufferedOutputStream.flushBuffer	ReadAheadInputStream.fill
BufferedOutputStream.flush	ReadAheadInputStream.readFromUnderlying
MysqlIO.send	ReadAheadInputStream.read
	MysqlIO.readFully
	MysqlIO.reuseAndReadPacket
	MysqlIO.reuseAndReadPacket
	MysqlIO.checkErrorPacket
<b>MysqlIO.sendCommand</b>	
MysqlIO.sqlQueryDirect	
ConnectionImpl.execSQL	
PreparedStatement.executeInternalQuery	
PreparedStatement.executeQuery	
NewProxyPreparedStatement.executeQuery	
Accounts.fetch	
Accounts.get	
AccountService.login	
ServletContainer.service	
ThreadPoolExecutor\$Worker.run	
TaskThread\$WrappingRunnable.run	
Thread.run	

# Application Connectivity

## Automated Frontends and Backends

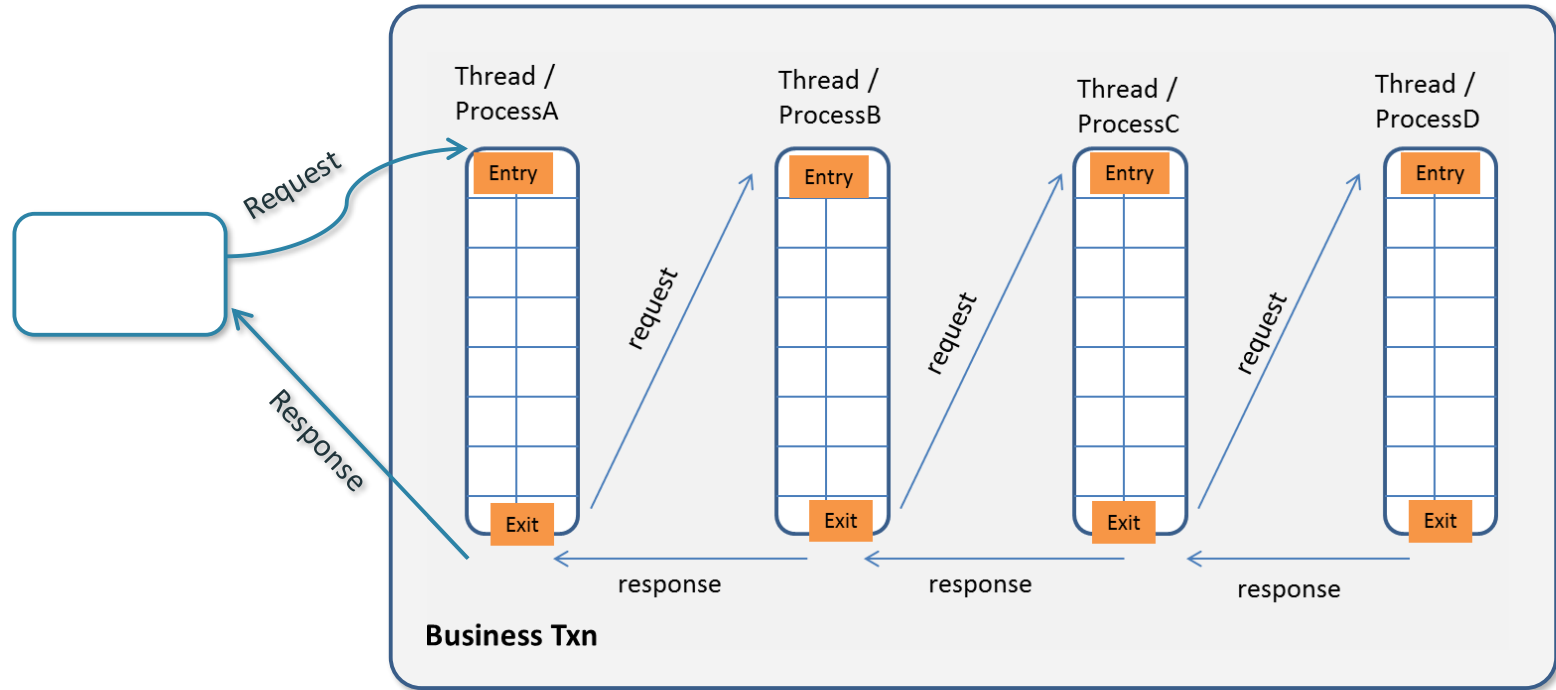
New key features:

- Unknown transaction start



# Agent Innovation

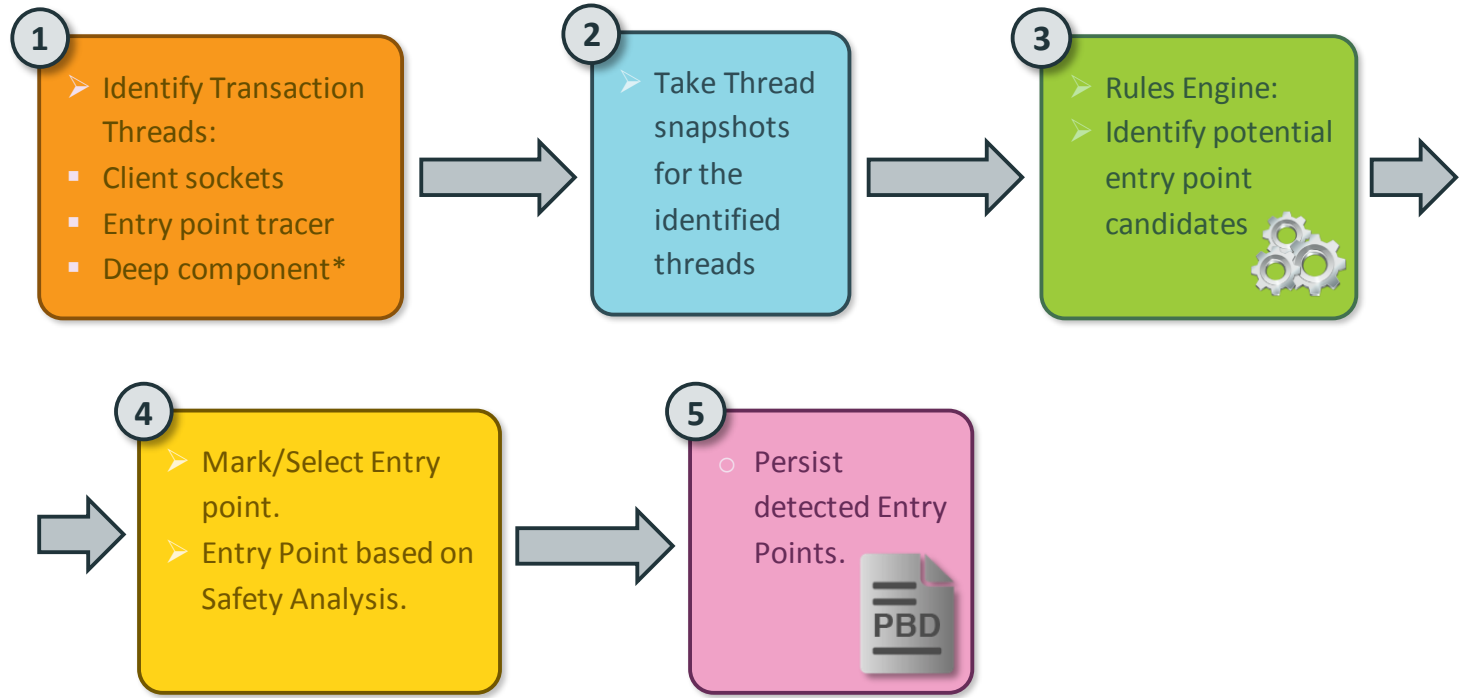
## Frontend Discovery





# Agent Innovation

## Frontend Discovery



# Agent Innovation

## Frontend Discovery – Candidate selection

- Class package prefix belong to application / domain
- 1/3rd call stack rule
- Runtime evaluation (Work on lightweight stack):
  - Count number of push and pop on Virtual Stack
  - Runtime evaluation on x-number of transactions
  - Candidate component is deemed safe if the number of pops equal pushes in all of the 'x' transactions
  - Candidate component is deemed unfit if it was pushed once in the stack and was never popped for 'x' transactions

# Key Domain Information

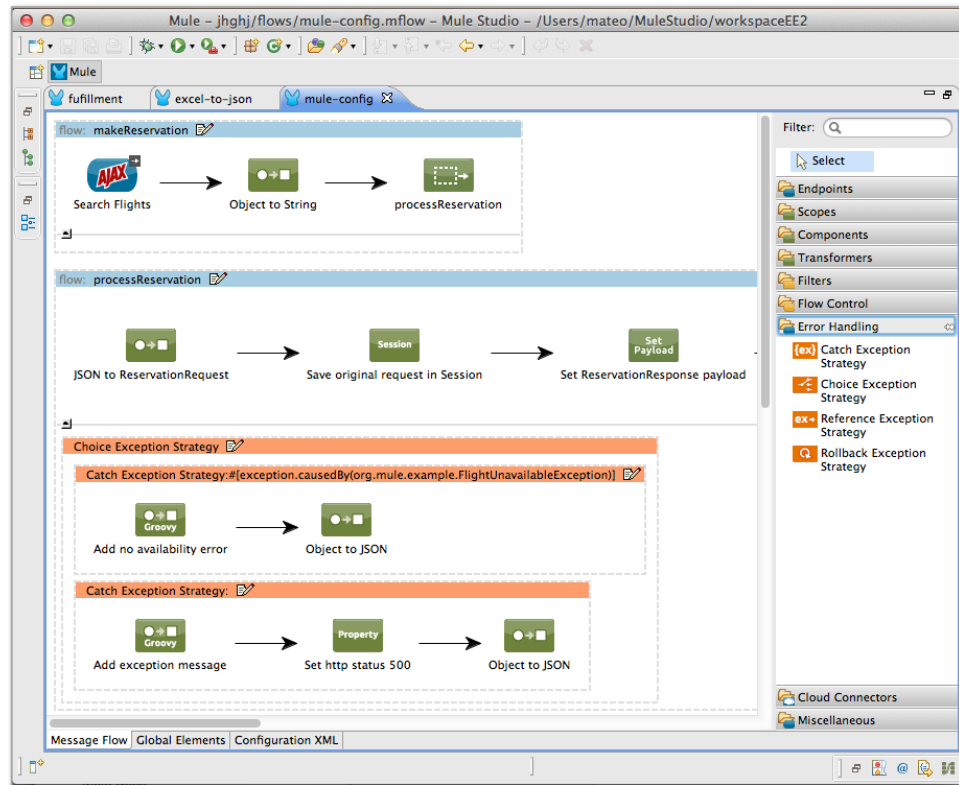


# Key Domain Information

Identifying what really matters

State of the art modelling of Processing logic

- The developer change
- No need for coding
- No knowledge about framework code



# Key Domain Information

## Legacy Monitoring Solution vs. State of the Art Monitoring

Legacy Monitoring Solution
<b>HttpMessageReceiver.processMessage()</b>
MuleWorkManager/executeWork/[app-3.4].connector.http.mule.default.receiver
WorkerContext.run()
6 fast method calls
MuleHTTP[http://0.0.0.0:8081/diagnosis]: writeResponse >
Application code (in WorkerContext.run())
HttpMessageProcessTemplate.routeEvent()
HttpMessageReceiver.routeEvent()
Application code (in HttpMessageReceiver.routeEvent())
JdbcMessageDispatcher.doDispatch()
JdbcMessageDispatcher.doSend()
StandardDataSource.getConnection()
Application code (in JdbcMessageDispatcher.doSend())
JDBC diagnosis insert

Java Methods  
without any  
implementation  
context

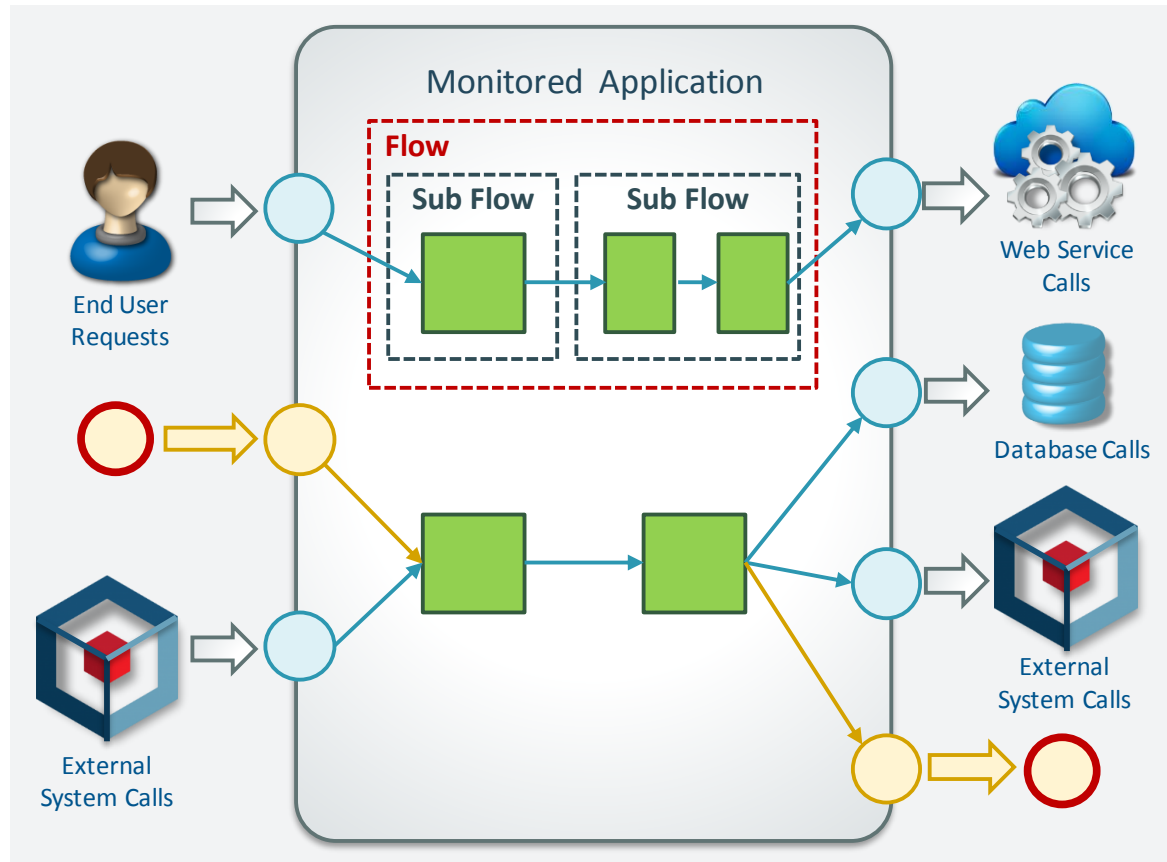
Detailed Transaction  
information with  
application specific  
naming and  
processing logic  
names

CA APM
Mule
Flow Processing
Average Response Time (ms)
Errors Per Interval
Responses Per Interval
Flows
soap-on-db-Flow
Message Processing
Average Response Time (ms)
Errors Per Interval
Responses Per Interval
Processor
Default
Logging
Statistics
Transformer
DomDocumentToXml
Response Sending

# Key Domain Information

Identifying what really matters

- Detailed domain specific discovery
- Build a logical group around execution path steps



muleESB

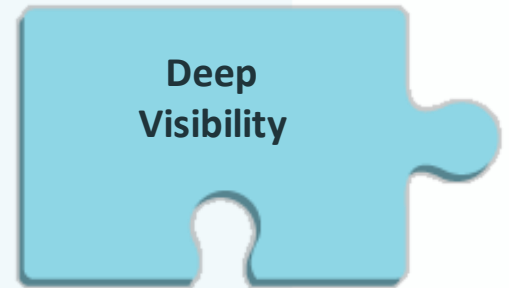
TIBCO

JBoss  
Fuse

ORACLE  
FUSION APPLICATIONS

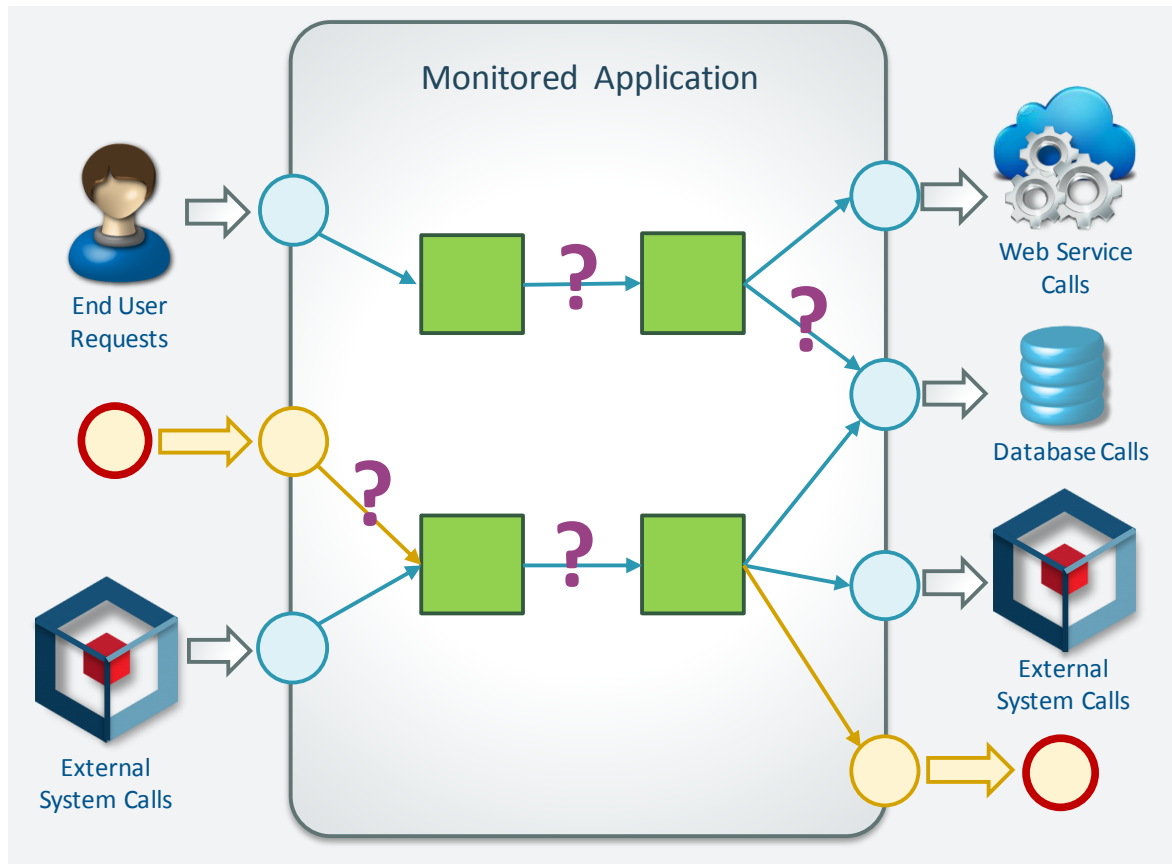
ca  
technologies

# Deep Visibility



# Deep Visibility

- What is happening in-between the lines?
- Any coding problem
- Detailed Developer information





# Smart Instrumentation

## Overview

***Goal:** Identify critical components to be monitored and Isolate problem components, without requiring comprehensive knowledge of an application environment or manual instrumentation.*

# Smart Instrumentation

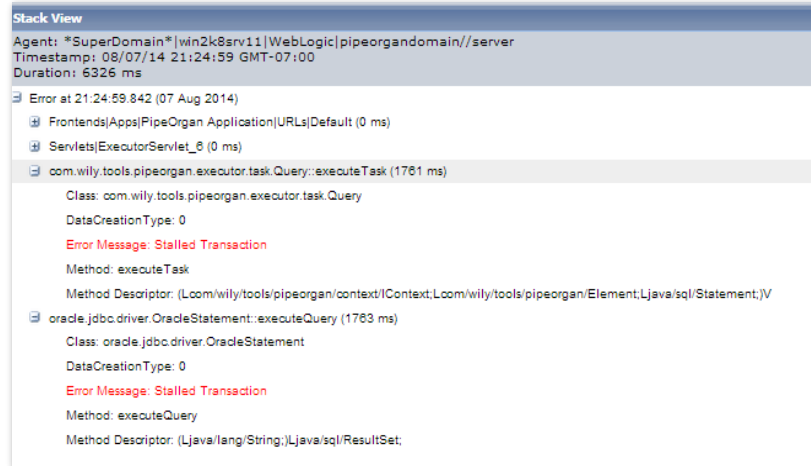
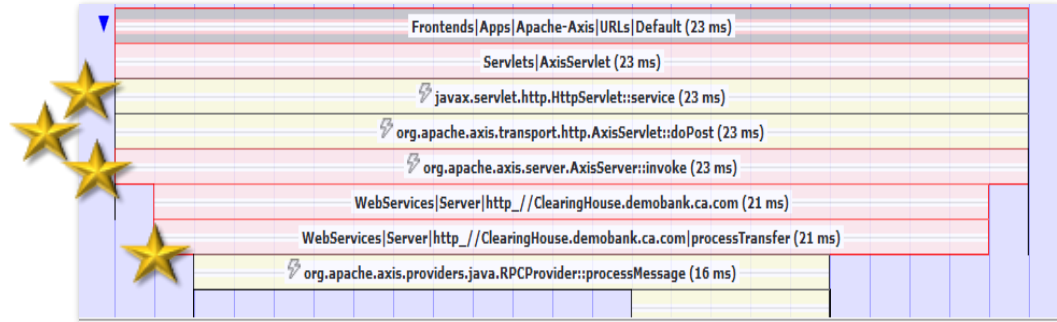
## Nomenclature

- “Smart Instrumentation”, “Intelligent Instrumentation”, “Deep Instrumentation” and “Deep Tracing” are synonymous terms for this feature
- “Deep Inheritance (an existing feature of the Introscope Agent) should not be confused with the new Deep (Smart) Instrumentation feature in 9.6. These are two distinct features

# Smart Instrumentation

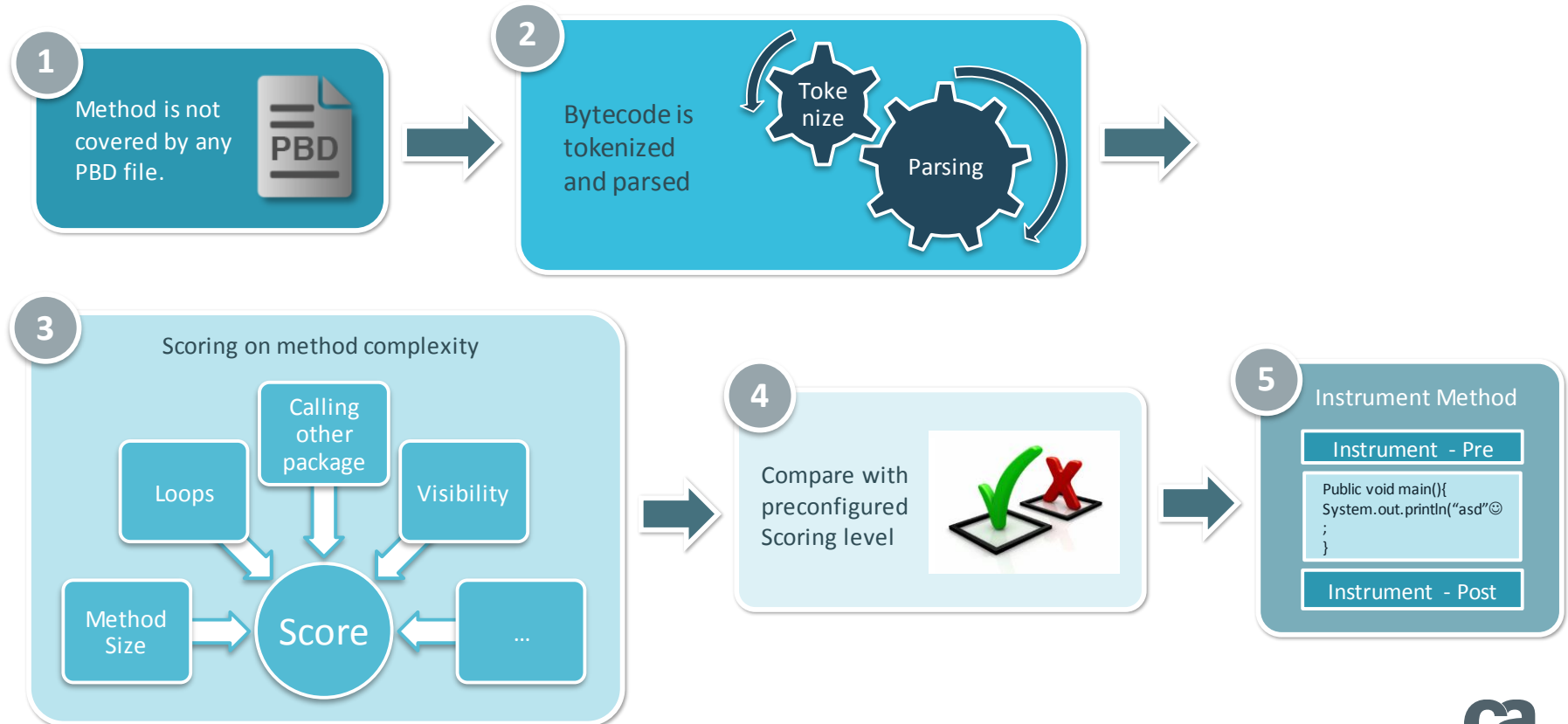
## Introduction

- Aim to auto instrument interesting methods
- No PBD requirements
- Methods will appear in Transaction traces and are referred to as 'deep components'



# Smart Instrumentation

## Probing



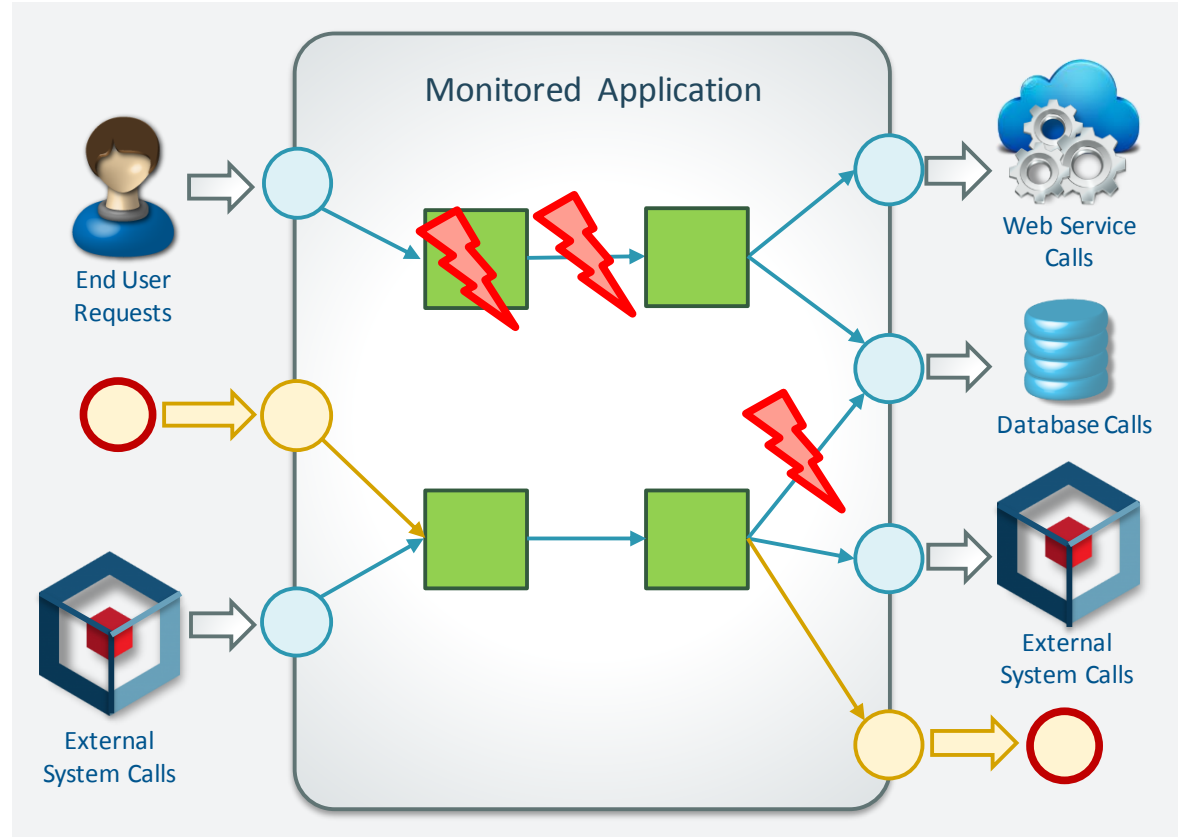
# Error Discovery



# Error Discovery

Finding the first problem

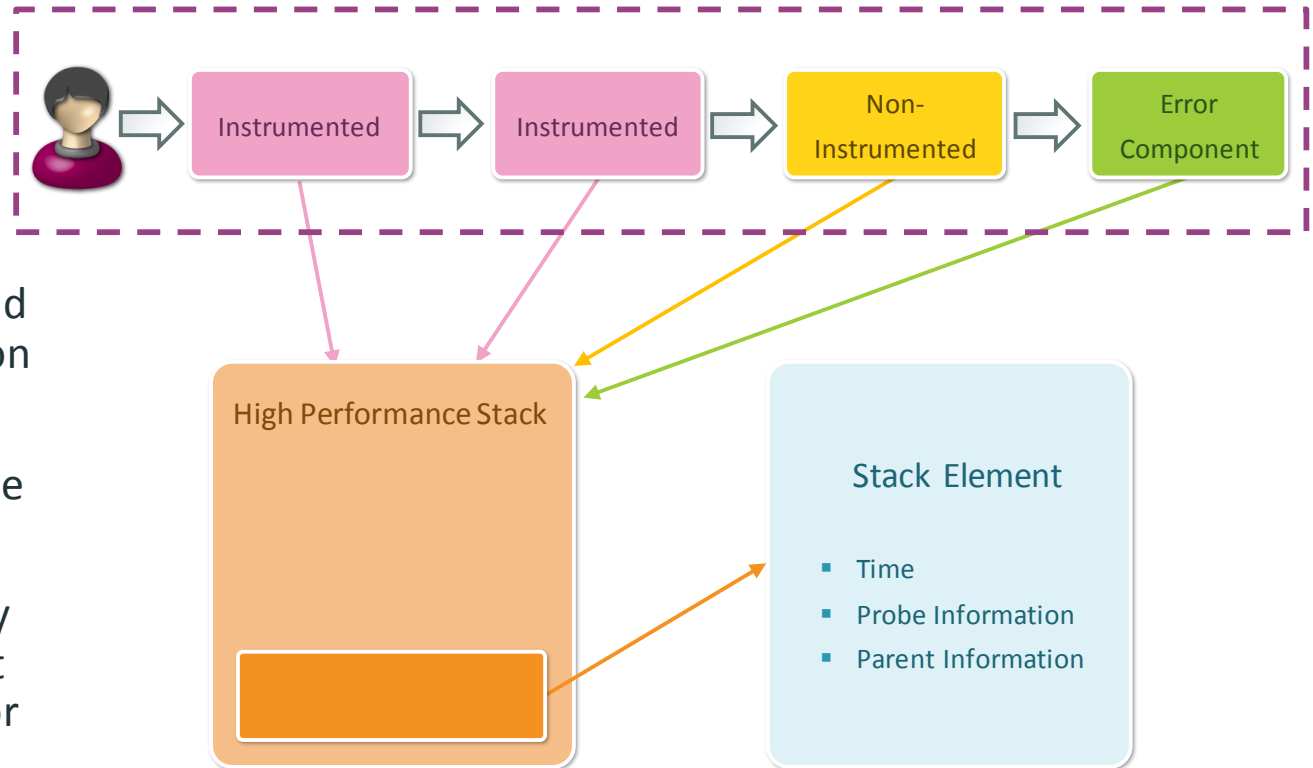
- New exception discovery
- First occurring error
- Detailed error component



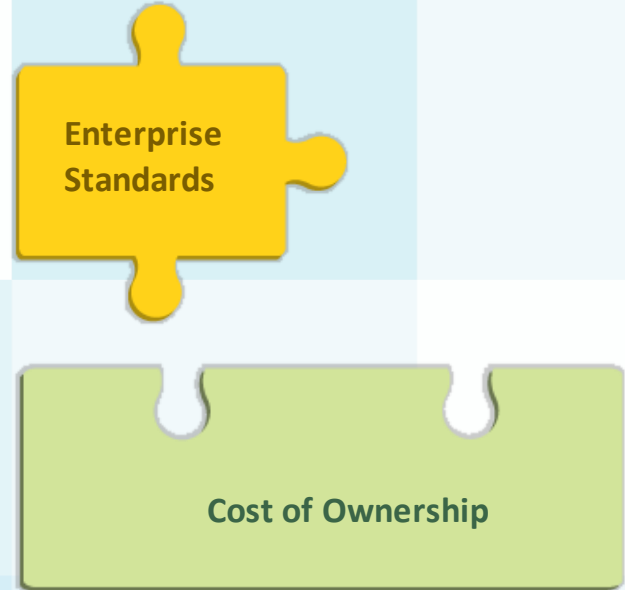
# Error Discovery

Finding the first problem

- High Performance Stack
- to track each and every transaction
- Report Error Snapshots on the very first error
- Identify the very first component showing an error



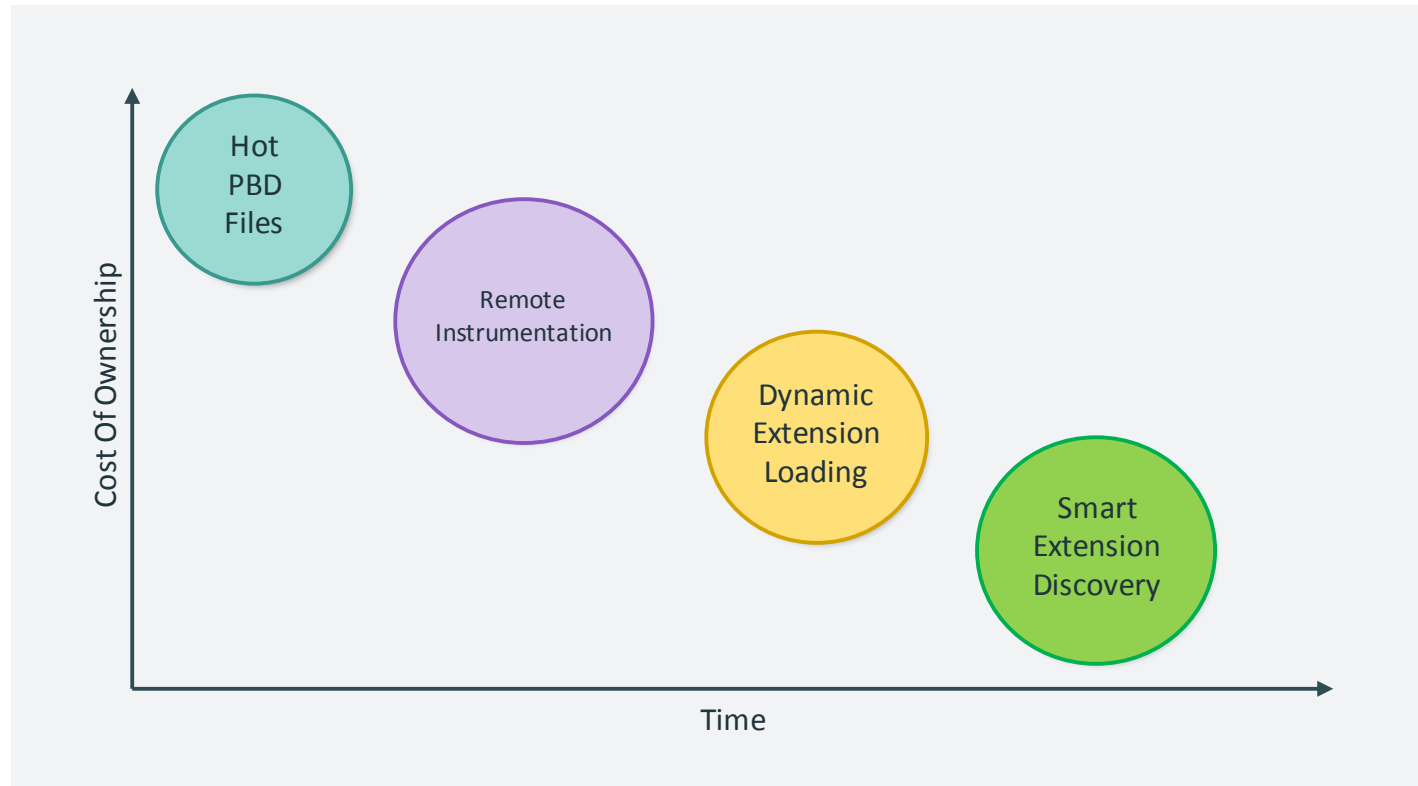
# Enterprise Readiness





# Enterprise Readiness

## Evolution



# Agent Management – Manage Agent Configuration

Easily and remotely configure Agents without restarting applications

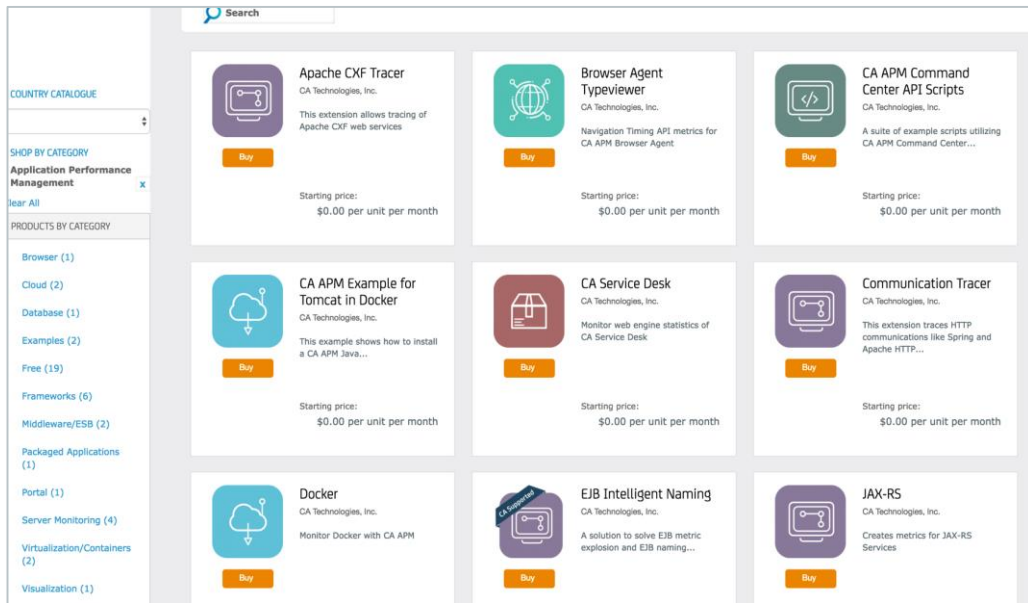
- add/remove/update extensions
- Configure agent properties

The screenshot shows the CA APM Command Center interface. The top bar includes the CA Technologies logo, the text "CA APM Command Center", and a search bar labeled "Search for packages". The left sidebar contains navigation icons for Home, Agents, Reports, Packages, and Bundles. The main content area is titled "Agent Builder" and shows a "Saved 10/12/2016 8:45 PM" timestamp. Below the title, there are three options: "Agent Package", "Select Bundles", and "Configure Bundles" (which is highlighted with a blue arrow). At the bottom of the main area is "Install Instructions". On the right, a "Filter by property" section displays a list of agent properties and their versions.

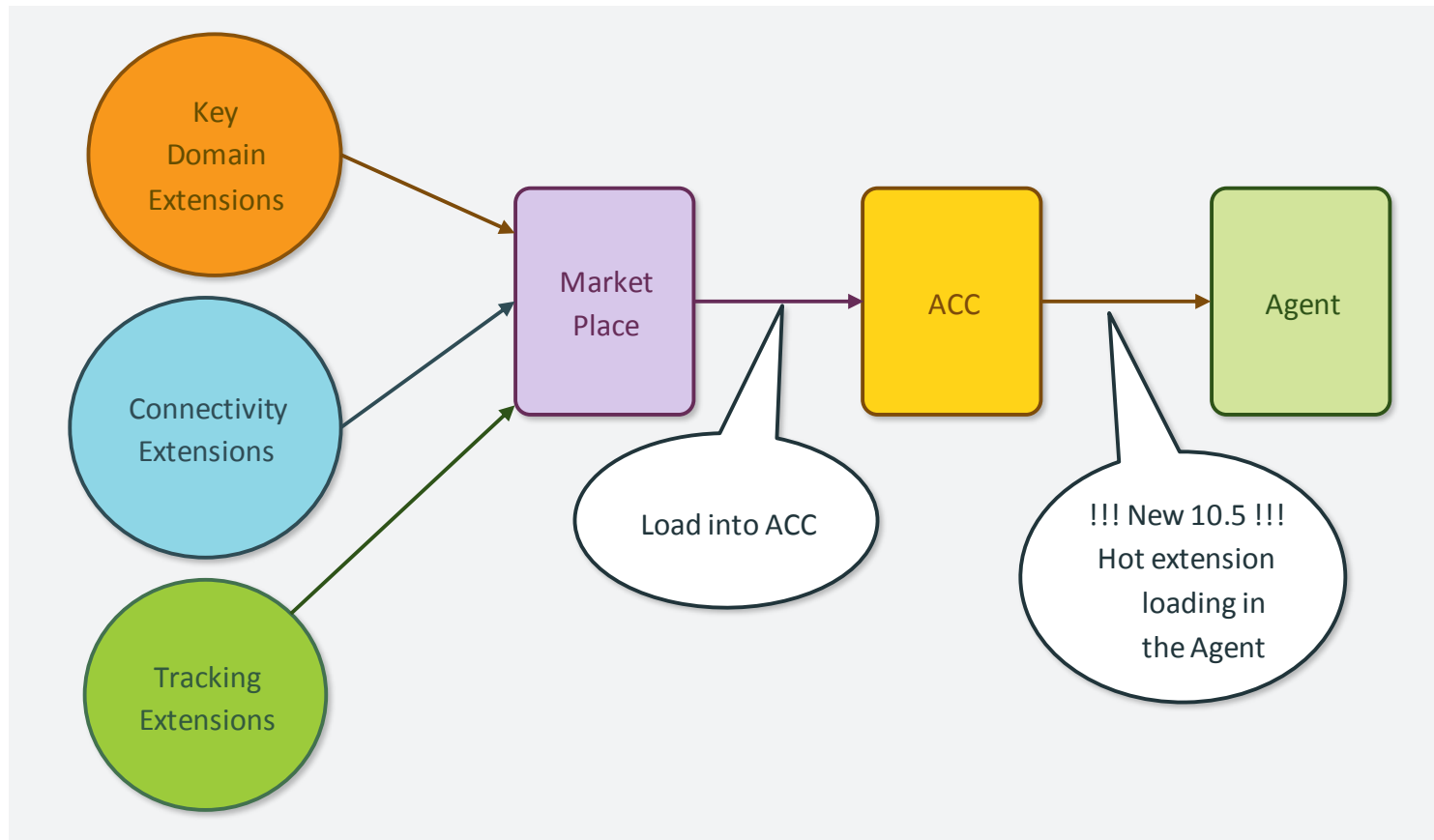
Filter by property	
Core (3)	
Command Ce...	99.99.0.0
<b>EM Connection</b>	<b>99.99.0.0</b>
Java Agent	99.99.0.0
Environment (1)	
Tomcat	99.99.0.0
Feature (15)	
CPU	99.99.0.0
CPU - Window...	99.99.0.0
EJBs (deleted)	99.99.0.0
Garbage Colle...	99.99.0.0
HTTP Backends	99.99.0.0
JMS	99.99.0.0
JMX	99.99.0.0
JMX (Tomcat)	99.99.0.0
JNDI (deleted)	99.99.0.0

# APM Marketplace **NEW**

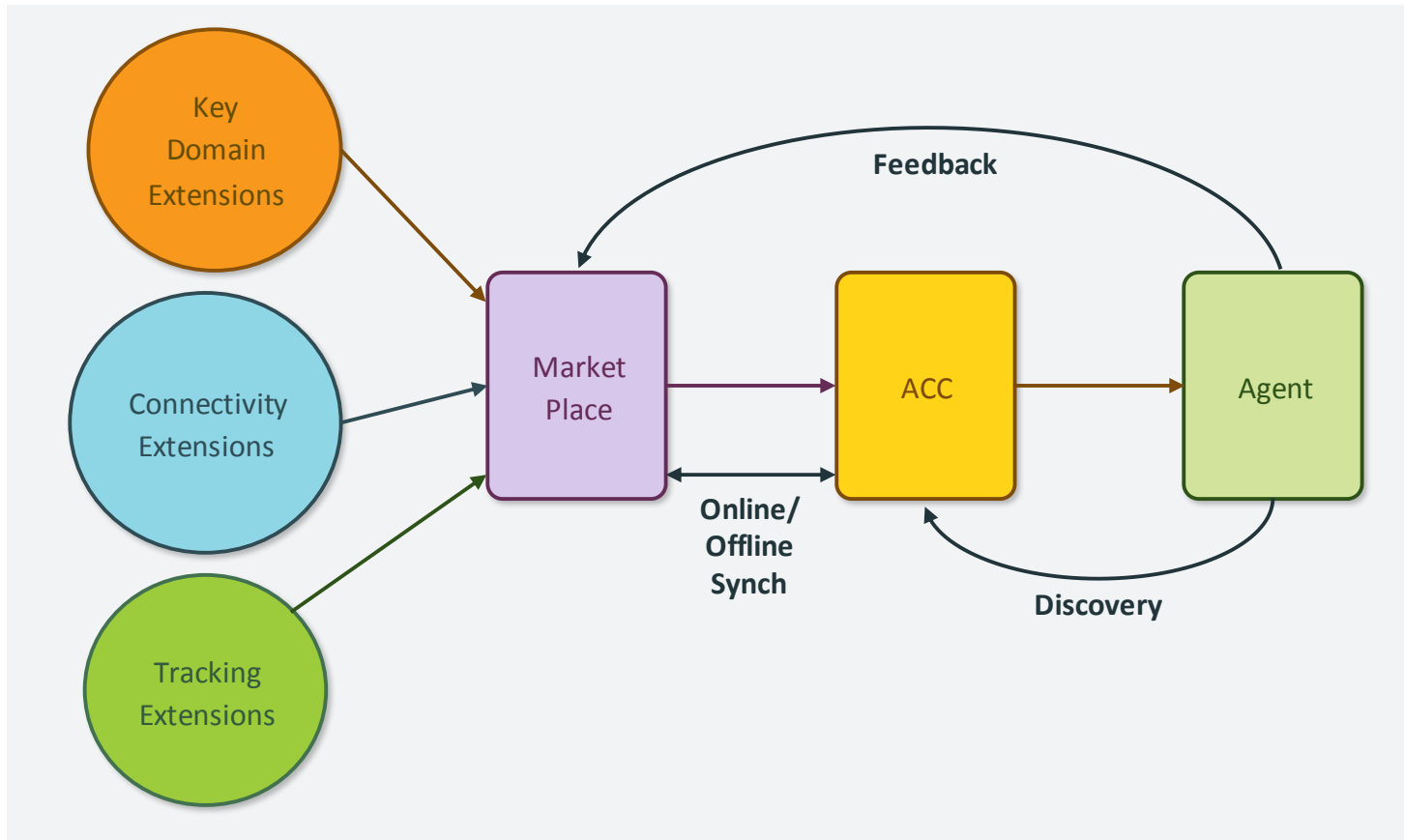
*New APM marketplace to help you easily find appropriate extensions to extend monitoring coverage*



# Agent Management – Manage Agent Configuration



# Agent Management – Next!!





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