

Service Virtualization:

Critical Component of Any Continuous Delivery Strategy

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Agenda

1 **LIVING IN THE APPLICATION ECONOMY (HOW ARE YOU COPING?)**

2 **WHAT IS SERVICE VIRTUALIZATION**

3 **MIND THE GAP WHILE SHIFTING LEFT (TESTING THAT IS)**

4 **THE CA DIFFERENCE**

5 **Q AND A**

Drive Innovation in the Application Economy

Service Virtualization ... The Catalyst of Continuous Delivery

Accelerate
Continuous
Delivery

Instill
Accelerated
Quality

Drive
End-to-end
Efficiency

Service Virtualization: Why It's Needed

BOTTLENECKS
EVERYWHERE

*Source: voke Market Snapshot™ Report: Service Virtualization – January 2015

Developers
Deadlocked

Over
80%

of teams experience delays in development and QA due to unavailable dependencies*

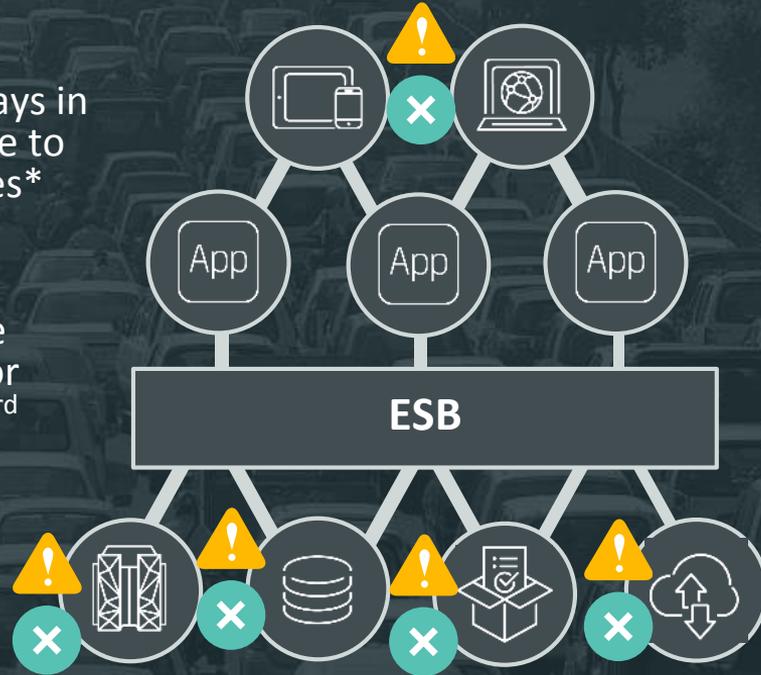
Access to Test
Environments/
Brittle Stubs &
Mocks

79%

of teams face prohibitive restrictions, time limits or access fees on needed 3rd party services*

“I can't do anything until I have everything

...
and I never have everything!”



System
Constraints

Data
Constraints

Cost
Constraints

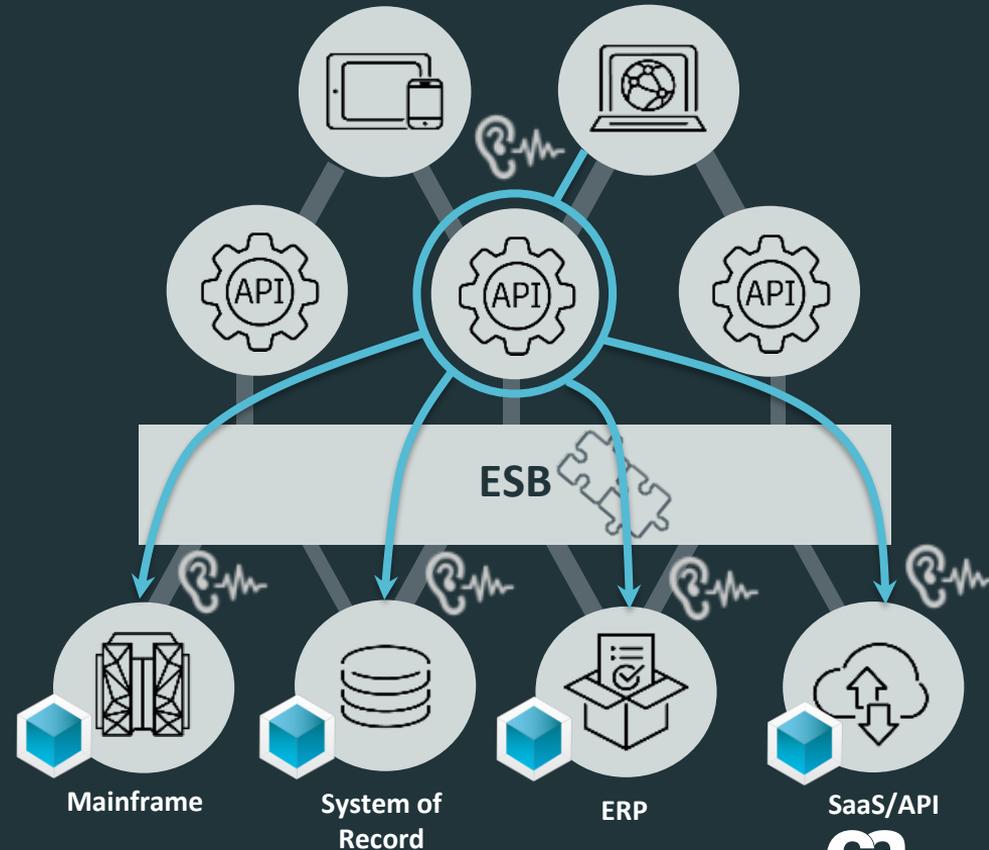
Development
Constraints

Leverage Service Virtualization to Drive Continuous Delivery

“ I have everything I need, when I need it!



Simulate unavailable systems across the software development lifecycle (SDLC), allowing developers, testers, integration, and performance teams to work in parallel.



6 Service Virtualization Use Cases (Just A Small Sampling)

1

“Business in a Box”

Use SV for Integration constraints for Mobile/ Cloud initiatives

2

3rd Party/API Access

Use SV to remove access and cost constraints

3

Accelerated Quality

Use SV to deliver a better end-user experience by improving Application Performance and Quality

4

Faster TTM

Use SV to “Shift-Left” your SDLC, customers have shown 25%-50% faster TTM

5

Training Environments

Use SV to create complete and comprehensive virtual training environments

6

Test Data Mgmt.

Use SV to remove Test Data Management constraints

Service Virtualization: How Does It Work?

"Any sufficiently advanced technology is indistinguishable from magic."

– Arthur C. Clarke

CAPTURE



Record traffic between existing systems

Create from engineering specs

Draw from sources such as log files, sample data, packet capture and CA Continuous Application Insight

PROCESS



Evaluate data and protocols

Convert into live-like model

"Make it easy" for developers

Consistent interface across supported protocols

MODEL



Living, breathing, "live" model

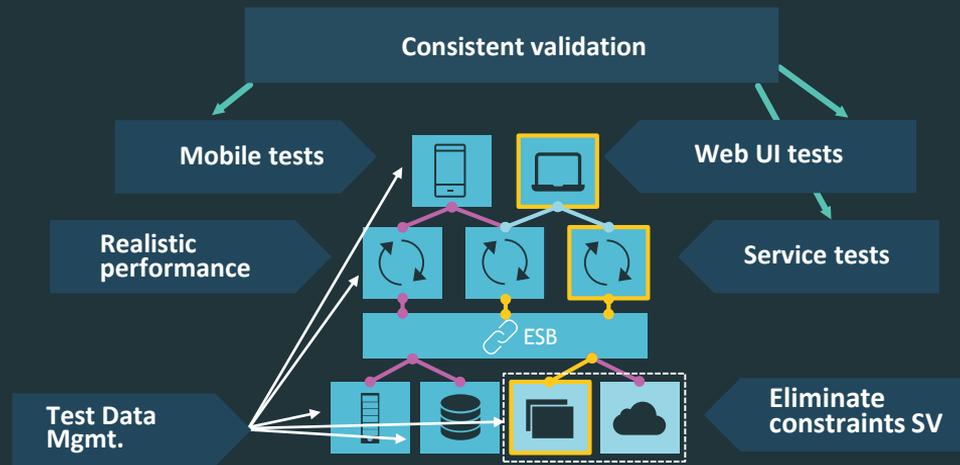
Sophisticated, contextual behavior

Automatic handling for dynamic properties

CA Application Test

- Invoke and verify at each component level across the end-to-end application
- Complete test coverage across tech stack (e.g. Web UI, Mobile Devices, Web Services, JMS, MQ, SQL, File-based, etc.) – extensible to anything beyond
- Portable, executable test suites that are easy to extend and chain into workflows with other tests
- Collaborate and re-use automated tests across teams
- Readily execute tests against different environments with different underlying data. E.g. Reuse functional test for performance testing
- Continuous Validation using CVE integrated with various notification mechanisms

**A complete testing solution
from mainframe to mobile....**



Not your usual "test automation" suite...CA Application Test methodologies allow you to shift testing to the left

CA Service Virtualization and Application Test Solution Set

DevTest

Industry leading foundation for companies to develop, test and release software with greater agility and higher quality

CA APPLICATION TEST

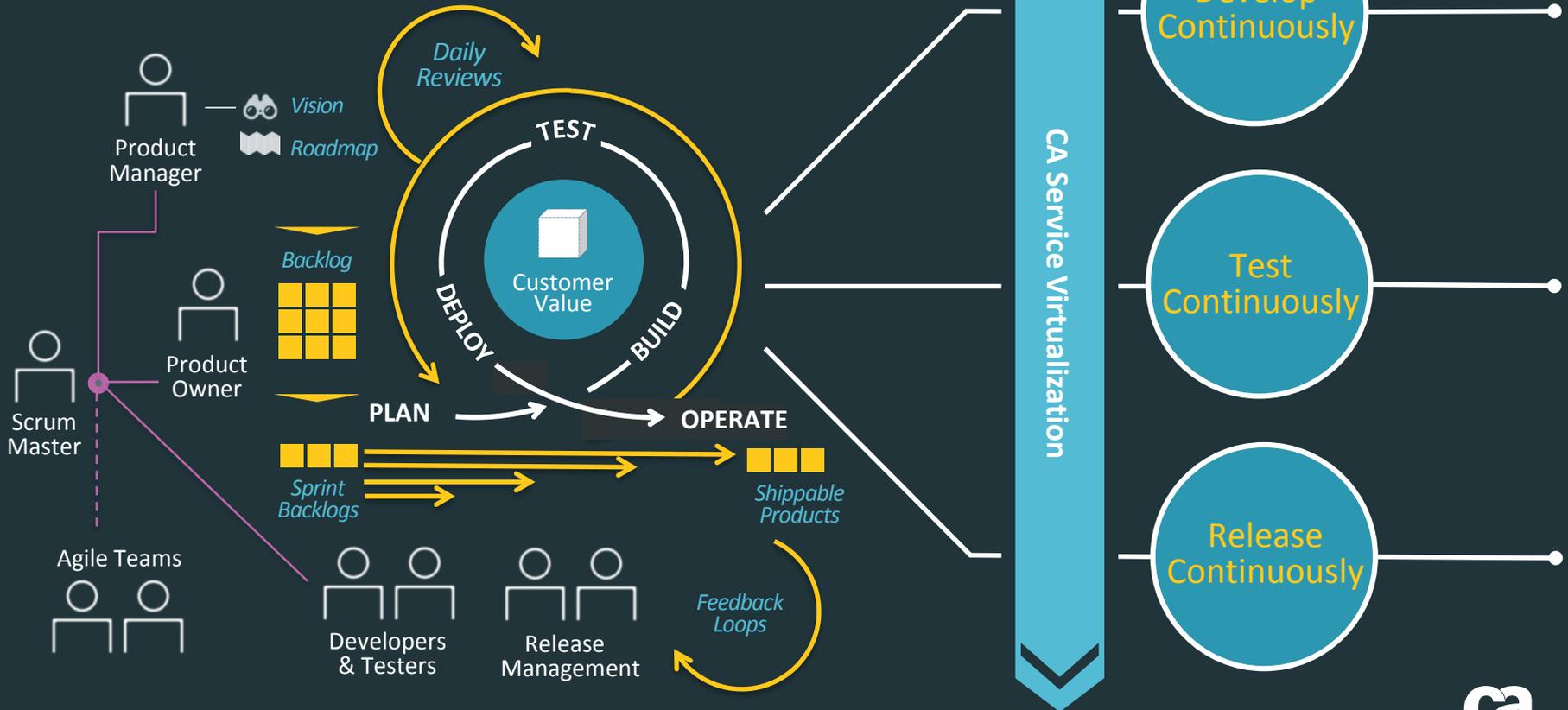
Allows for all types of testing of multi-tiered architectures at any layer

CA SERVICE VIRTUALIZATION

Allows for Constraint-free Development and Testing of Software

CA's 3 Pillars of Continuous Delivery

Making the Entire Lifecycle Continuous



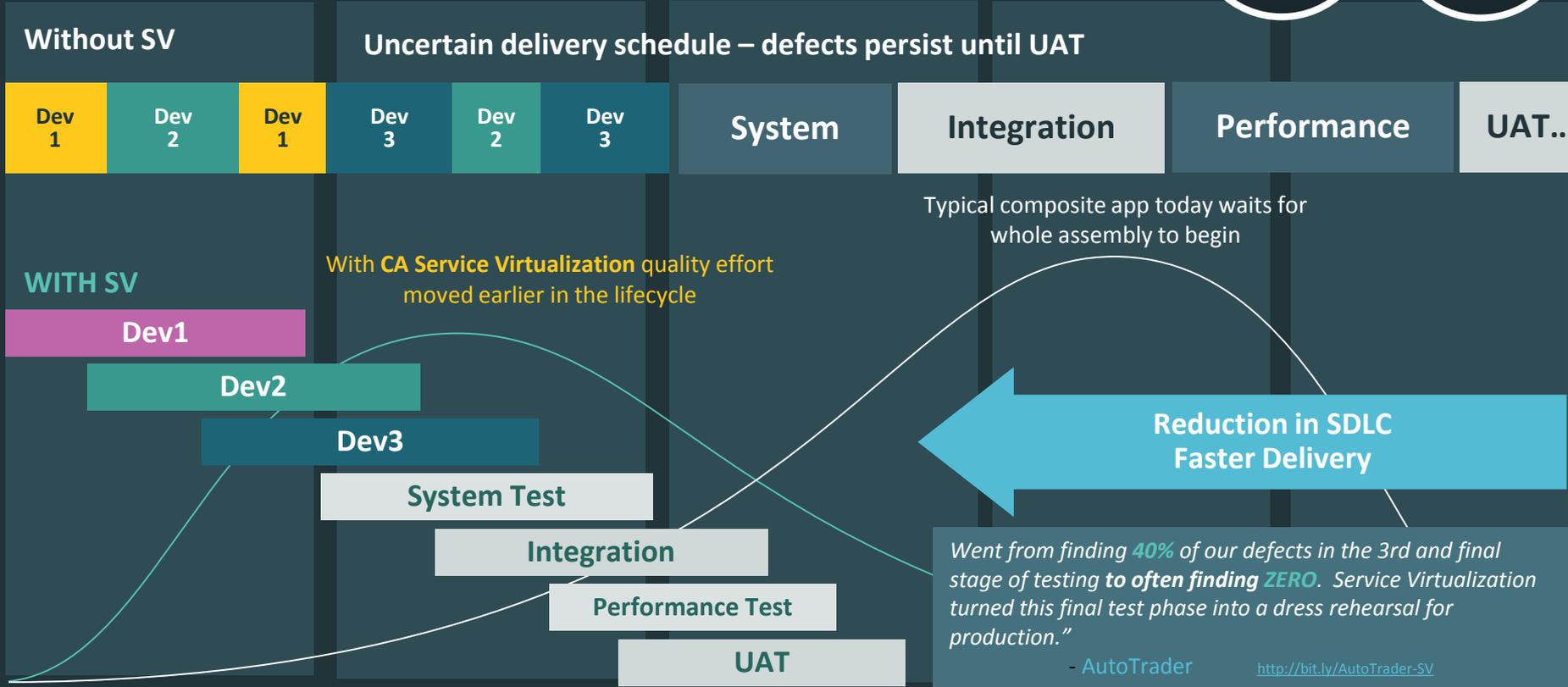
Mind the Gap While Shifting Left (Testing That Is)



New Innovation Paradigm “Shift-left” the SDLC

Accelerate
Continuous
Delivery

Instill
Accelerated
Quality



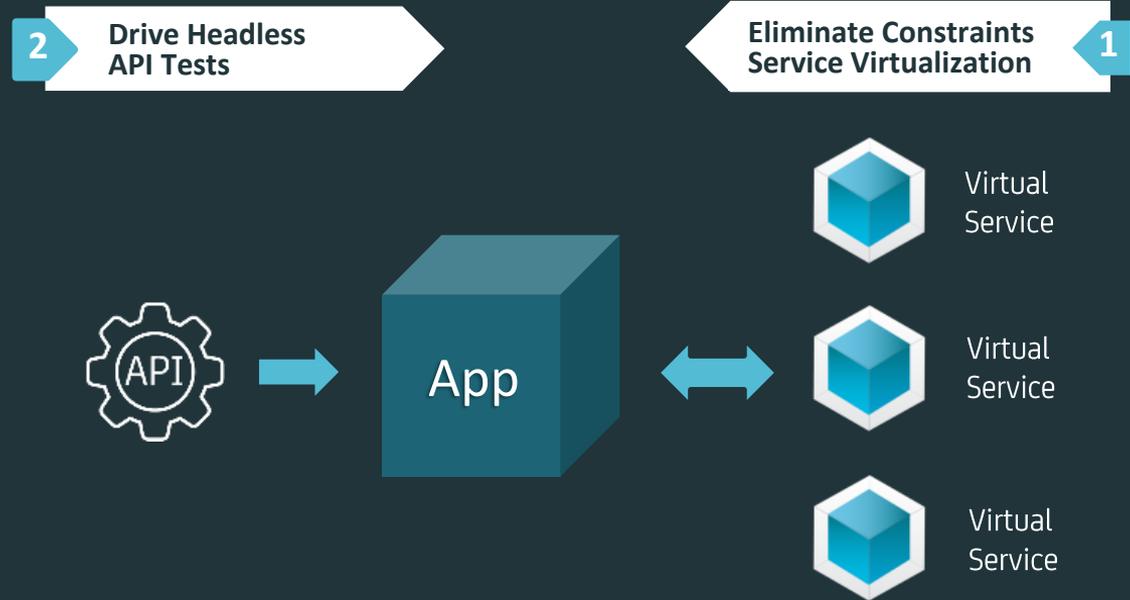
Piecing Together the Puzzle

Component Test More Effectively, As Early As Possible

Enable better component testing

- "Always there" environments
- More full-featured environments
 - Data/Access
 - End-to-end
 - Performance

Eliminate both upstream and downstream constraints



Integration Testing

Create test environments that exactly replicate production infrastructure

- Catch defects in unit testing where less expensive than full system
- Test components out of order when needed
- Capture behavior/performance data of composite applications
- Avoid manual repetitive development of stubs or mockups



Components



Integration Lab

Increase availability
of testing platforms

up to **90%**

KPN Telecommunications

Enable **Agile**
Testing Sprints

Save **\$2.5 million**
in infrastructure

Forrester TEI Study November 2015

Cut overall
development cycle by

66%

Nordstrom

AutoTrader

- **Avoided \$300,000** in test hardware and software costs
- Cut integration time from **three days to three hours**
- Decreased software defects **by 25 percent**



Autotrader

STABILITY

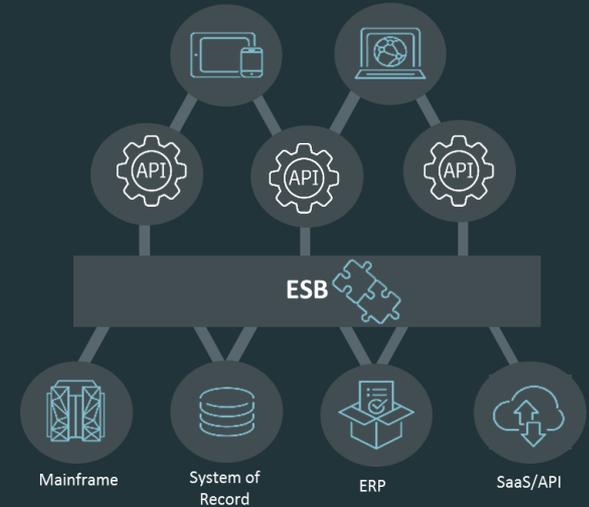
“CA Service Virtualization gives us a more stable and available environment for Testing”



Automate Regression Testing

Move the test closer to the business logic and start testing at the API layer

- Discover APIs automatically. Auto generate test cases at full velocity
- Auto generate baseline and directly invoke & verify ESB responses
- Invoke and verify across all layers with a single test
- Stabilize regression test environment with service virtualization



35% reduced costs by remediating defects early

Estimations derived from analysis of benchmark data which is a composite from multiple sources.

Automate **90%** plus of regression tests

Recommended goal

25% savings in hardware costs

Estimations derived from analysis of benchmark data which is a composite from multiple sources.

Run **High Fidelity** tests that keep up with development

National Cable Service Provider

- Regression tests reduced from **18 weeks of labor to 1 day**
- Major release schedule **reduced by 6 weeks**
- Saved more than **95%** of per-test costs

QUALITY

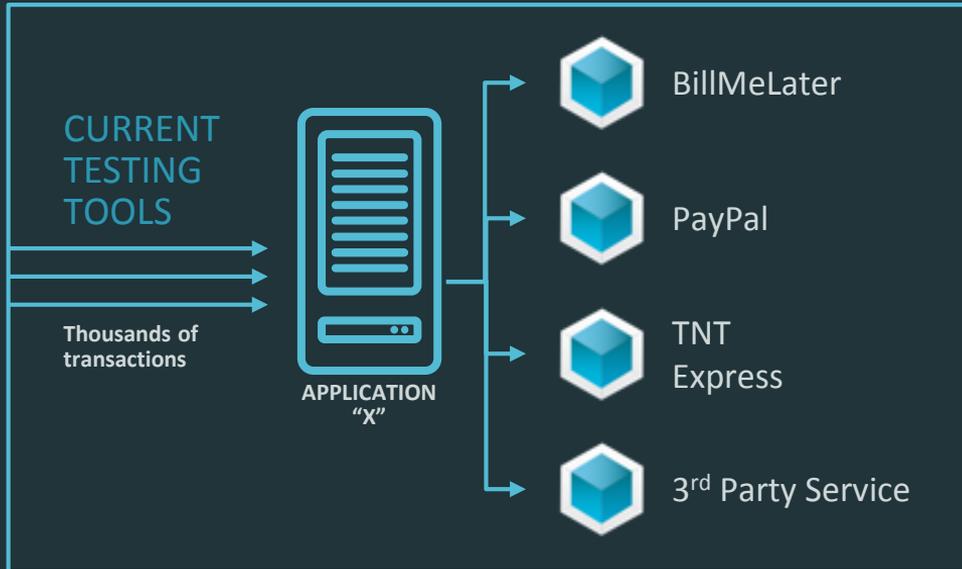
"The team now performs a complete regression suite in hours for every feature enhancement instead of only having the time to test what they thought had changed in the environment."

Benefits to Performance Testing

Virtual Services + Current Testing Tools

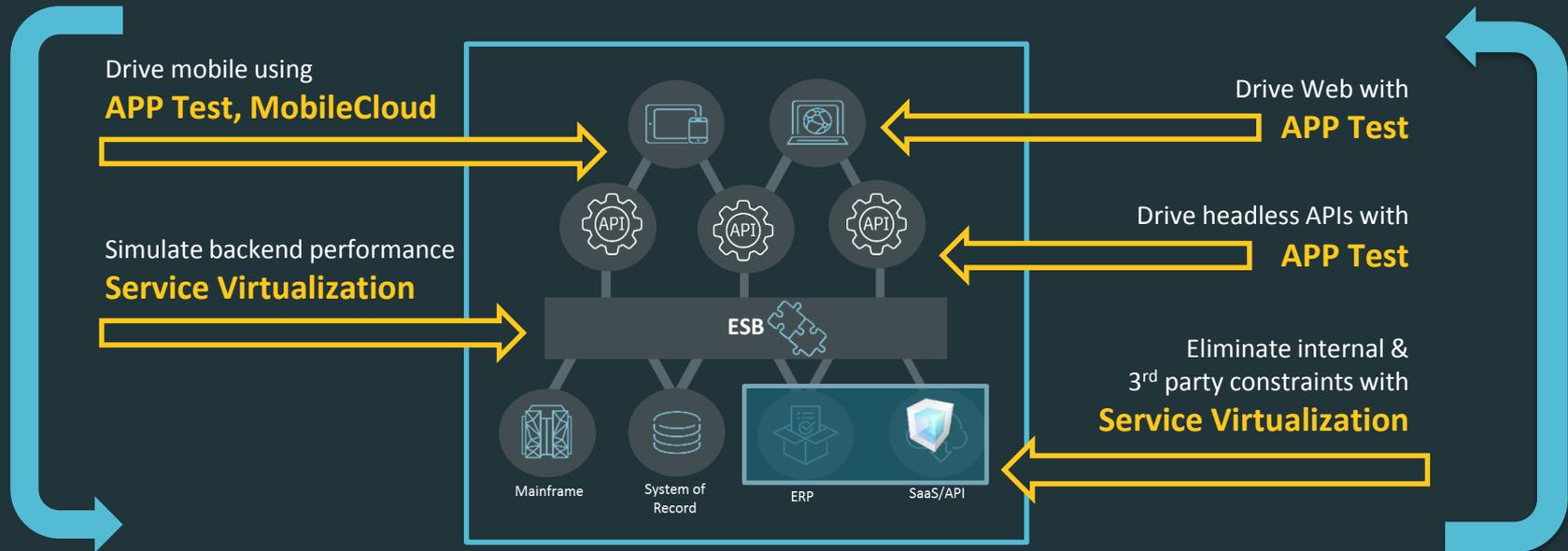
CHALLENGE

Creating a lab capable of handling production capacity loads may not be realistically possible.



- Load Test at the **Component Level**
- Test for Volume and Capacity **Independently**
- Locate Bottlenecks **early**
- Virtualize 3rd Party Systems, Mainframe Data: **Always Ready, Highly Scalable**
- **Immune** to Availability and Constraint Issues
- **Vary the response times** from the virtual services!
- **Run thousands of transactions** through the actual application on the actual hardware with **NO IMPACT** on your existing systems!

Testing is no Longer an “Event” with Service Virtualization, and Automate the Entire Process



CA Service Virtualization Key Features/Differentiators

1

MULTI DATA
PROTOCOL
SUPPORT

2

DEPTH OF
CAPABILITIES FOR
AUTOMATING THE
CREATION OF
VIRTUAL SERVICES

3

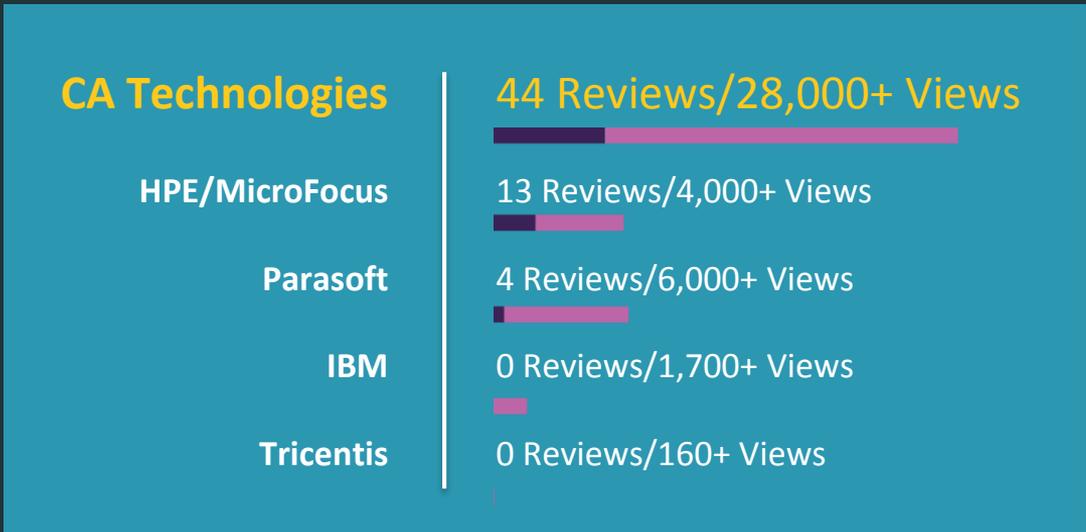
DYNAMIC STRING
AND DATA SUPPORT
WITH RANDOM TEST
DATA

CA Service Virtualization: Why Organizations Choose CA Technologies Over Other Vendors

Consistently the Number One Service Virtualization Solution



As ranked by IT Central Station, 2016



CA Service Virtualization: Real Value

Service Virtualization can help improve software quality, speed up time-to-market, and reduce costs.



ROI	NPV	PAYBACK
273%	\$4.30M	3.2 mos.



IMPROVED RELIABILITY
Identifying 150 defects earlier in QA per release



IMPROVED PRODUCTIVITY
640 hours of savings in Dev/QA processes per release

Based on three-year, risk-adjusted financial model for the composite organization

Forrester Total Economic Impact (TEI) Study for CA Service Virtualization

The Total Economic Impact™ Of CA Service Virtualization, a commissioned November 2015 study conducted by Forrester Consulting on behalf of CA Technologies

*“In order to do performance testing required, we were able to virtualize a lot of back-end systems and hardware simulation, **avoiding \$1.8 million.**”*

— AVP, quality assurance

“So without Service Virtualization, as highly integrated as our systems are, there is no way we could have speeded things up and moved to an Agile methodology.”

— Senior manager, software engineering

Thank you!

