

IT

(New Generation of APM)

2013-05-23



Topics

- IT
- APM
- Case Study





1

급격한 애플리케이션 기술의
발전으로 인한 **복잡성** 증가

2

경쟁 우위 지속을 위한 **혁신 추진**
의 어려움

3

비즈니스에 영향을 미치는 성능
문제의 인지 및 해결 우선 순위
선정의 어려움



dra

op



Business Pain

성능 문제의 원인 파악
어려움

EDGE

CLOUD

DATA CENTER

Time to Market

New Technologies

**Business Pain**

매출 감소 / 생산성 저하
/ 경쟁력 감소

**Enterprise**

How do we know when we have a problem? What are the signs? What are the symptoms?



Business Pain

IT 비용 지출 증대 및
IT 성능 저하로 인한
비즈니스 영향

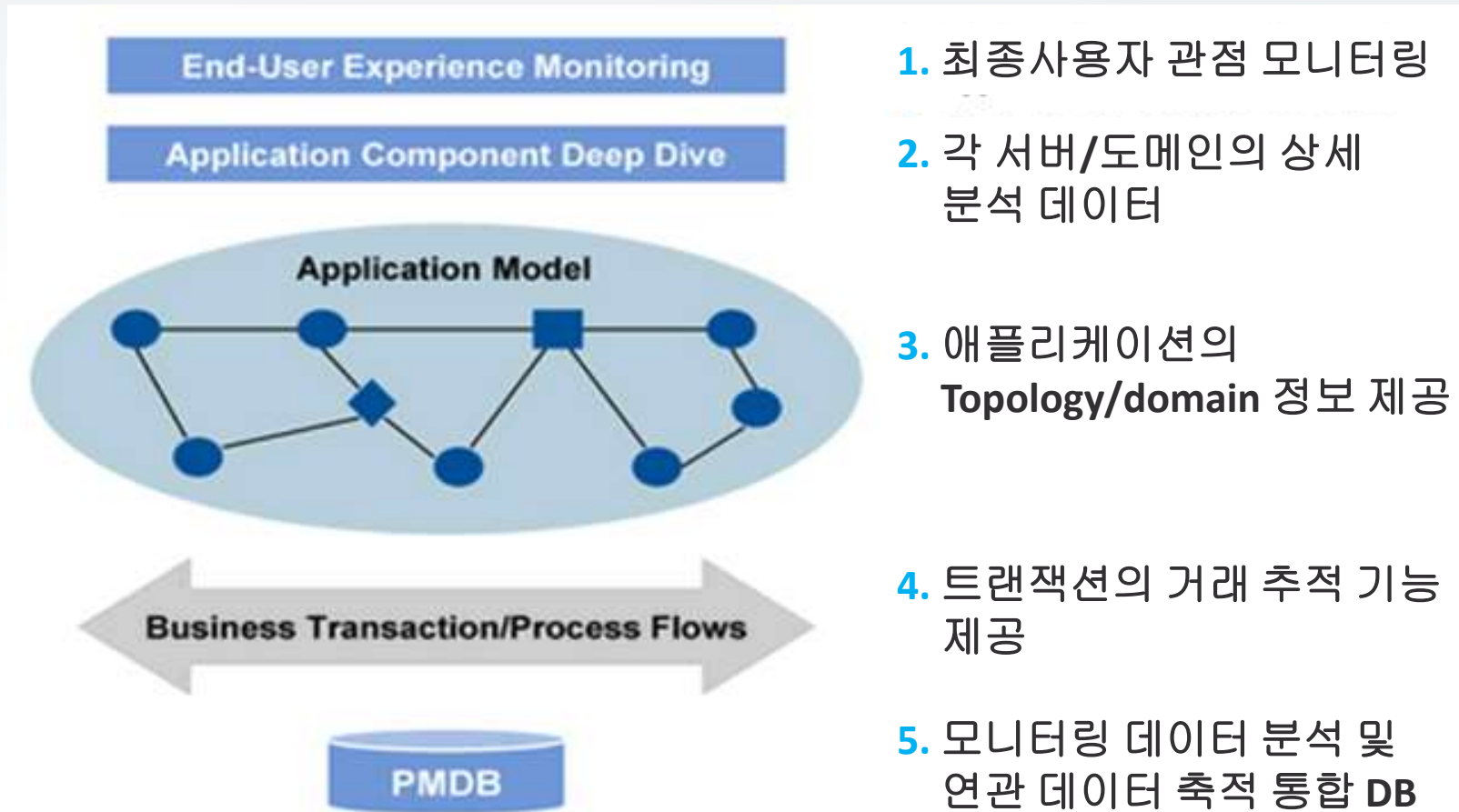
Client?

Page size?

해답은...

A New Generation of APM

차세대 APM에서 필요한 5대 필요 기능 - Gartner



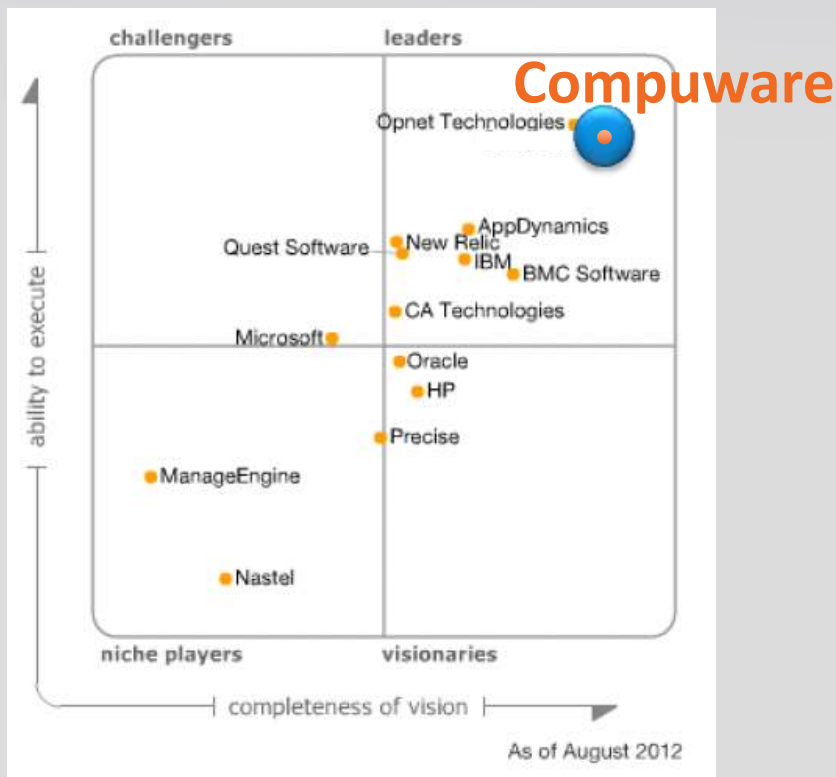
Acronym Key : PMDB – Performance management database

Source: Gartner



APM Magic Quadrant

Gartner has recognized Compuware as a leader for **three straight years**



#1 Provider

Top 500 Online Retailers

Sixth Consecutive Year



Global Company of the Year

cloud-based application monitoring



Compuware APM Customers

386 of the Fortune 500

33 of Comscore's Top 50 Web Properties

7 of the top 10 U.S. online retailers

4 of the top 5 online European retailers

This Magic Quadrant graphic was published by Gartner, Inc. as part of a larger research document and should be evaluated in the context of the entire document. The Gartner report is available upon request from Compuware. Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings. Gartner research publications consist of the opinions of Gartner's research organization and should not be construed as statements of fact. Gartner disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose.

차세대 **APM** 구현 기능



최종 사용자
관점

Manage user
experience
across users,
devices,
browsers and
geographies



모든 트랜잭션
관리

100%
transaction
visibility with
deep-dive
diagnostics for
rapid problem
resolution



Smart
분석

Real-time and
historical
business and
IT analytics
provide
Answers,
Not Data



Lifecycle 중심
설계

Unified
platform fosters
collaboration
between
production, test
& development
teams



가치 창출
시간 최소화

APMaaS
platform, smart
analytics, &
advanced APM
automation
delivers value
within hours

최종 사용자 관점



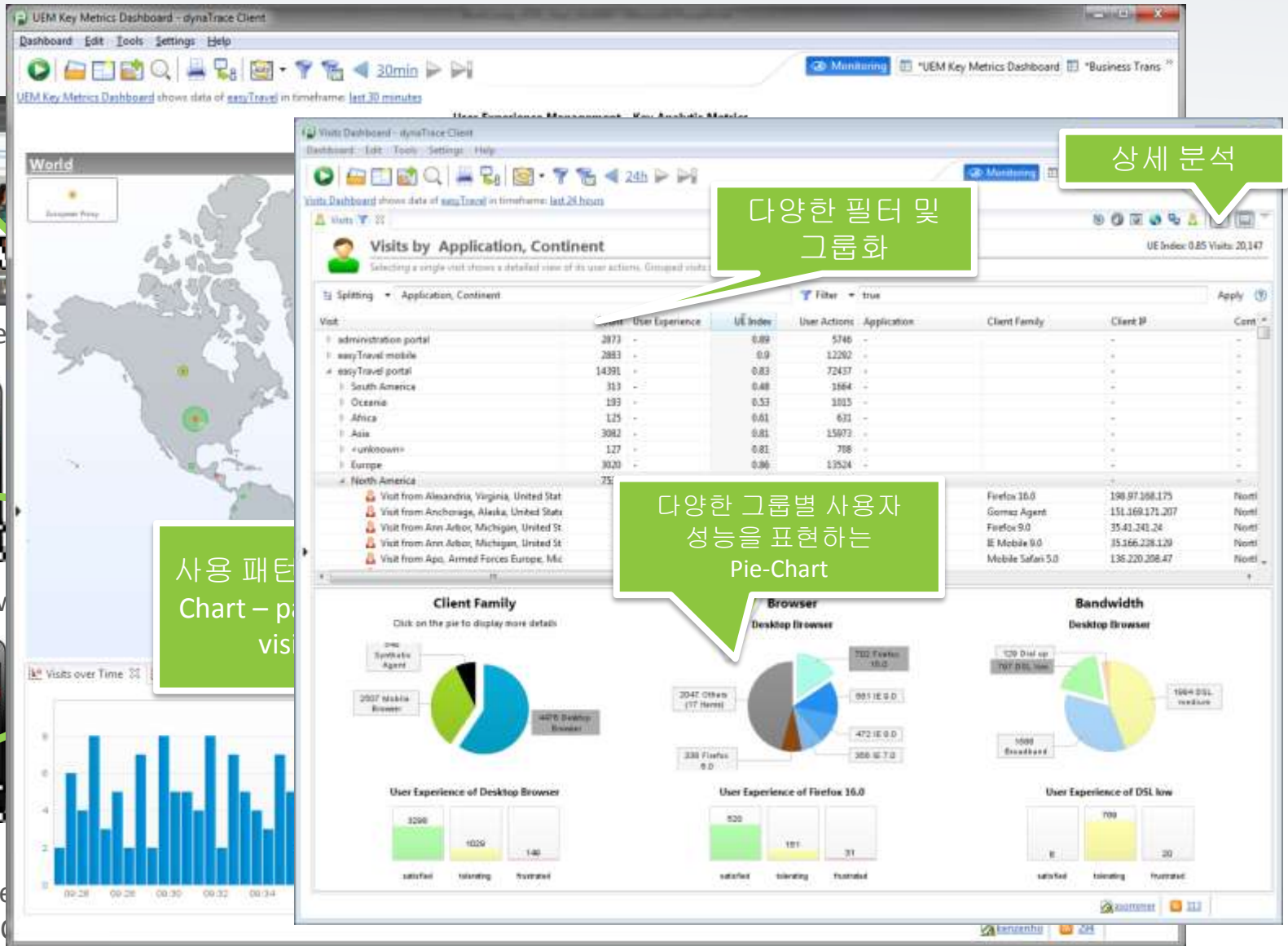
Browser



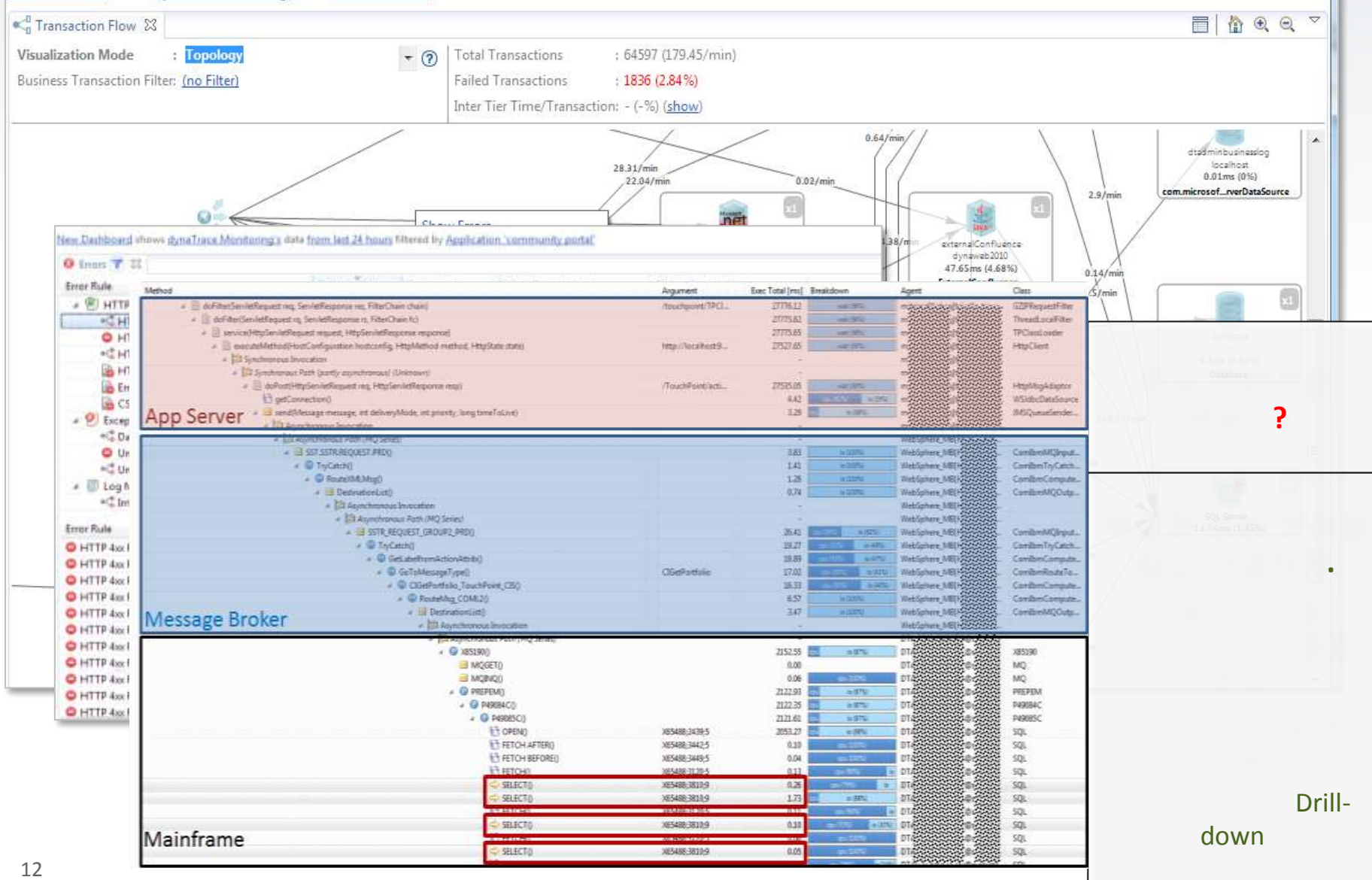
Mobile Browser



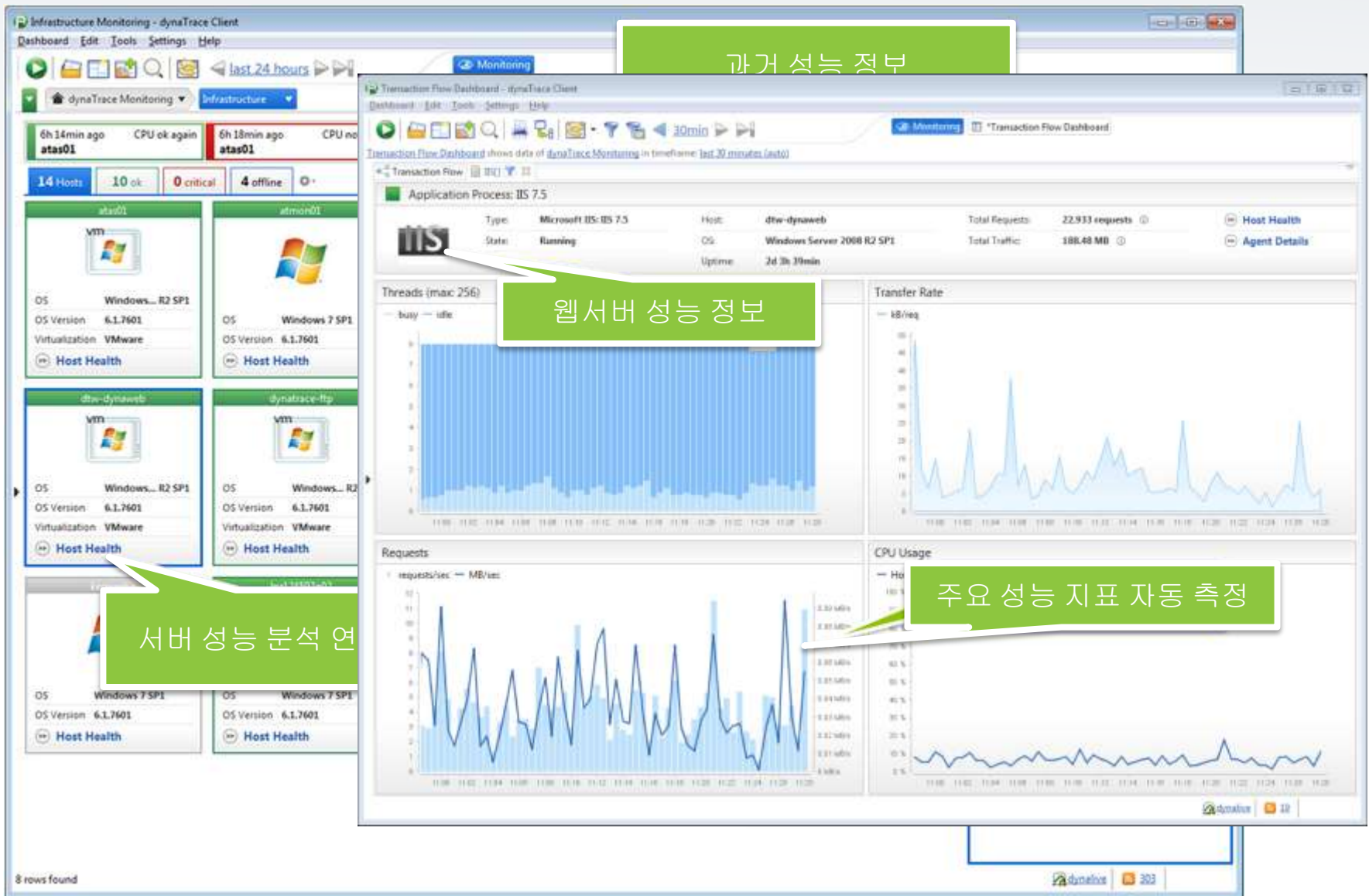
Mobile native
Android/iOS



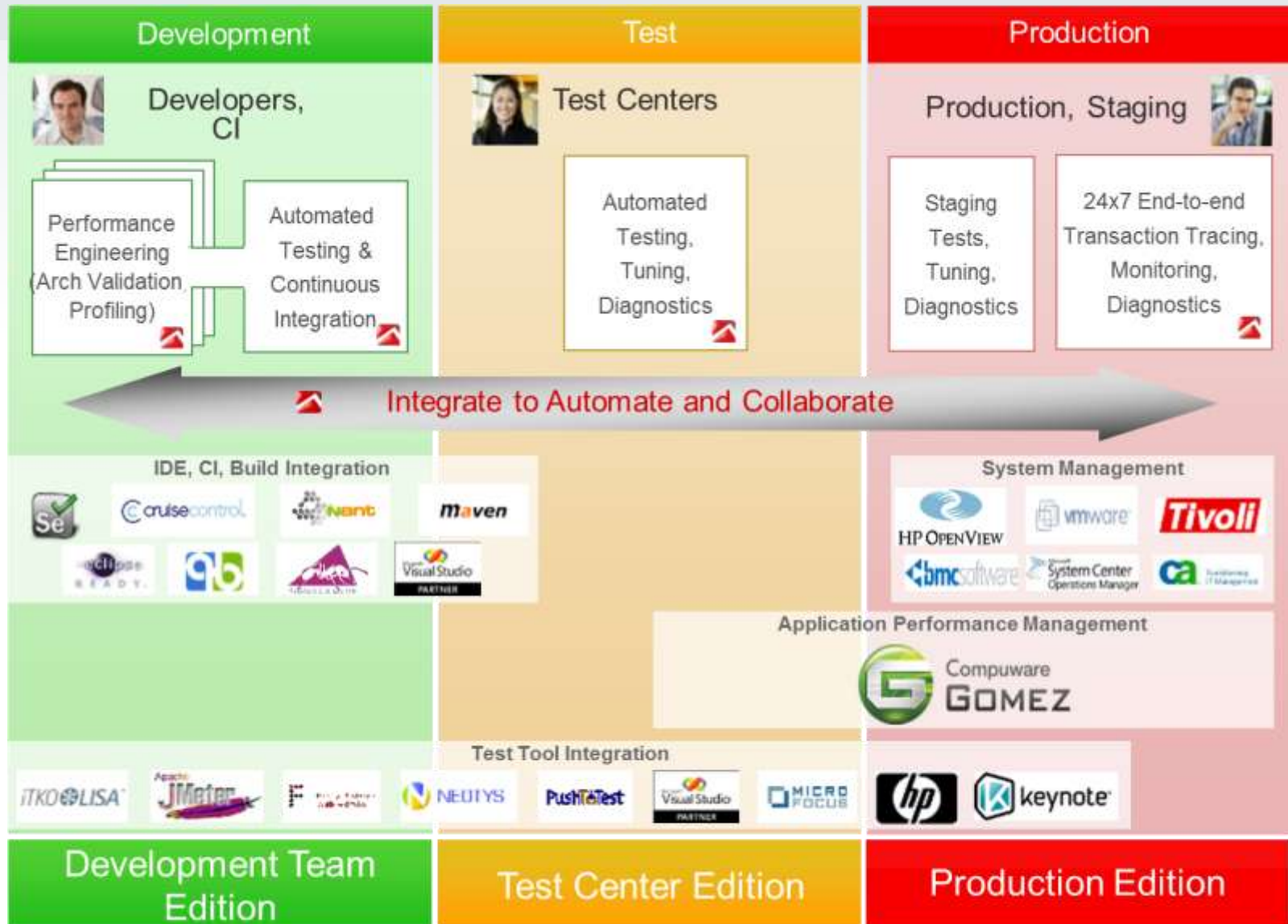
New Dashboard 1 shows dynaTrace Monitoring's data from last 6 hours



Smart 분석



Lifecycle 중심 설계



dynaTrace 5 – One Platform – Single Product

가치 창출 시간 (Time To Value) 최소화

Zero-Configuration



Auto-Discovery



Pure Model



Auto-Injection



Auto-Analytics

현대 애플리케이션에 사용되는
최신 IT 기술을 관리할 수 있는
차세대 APM 제공



Web

Mobile

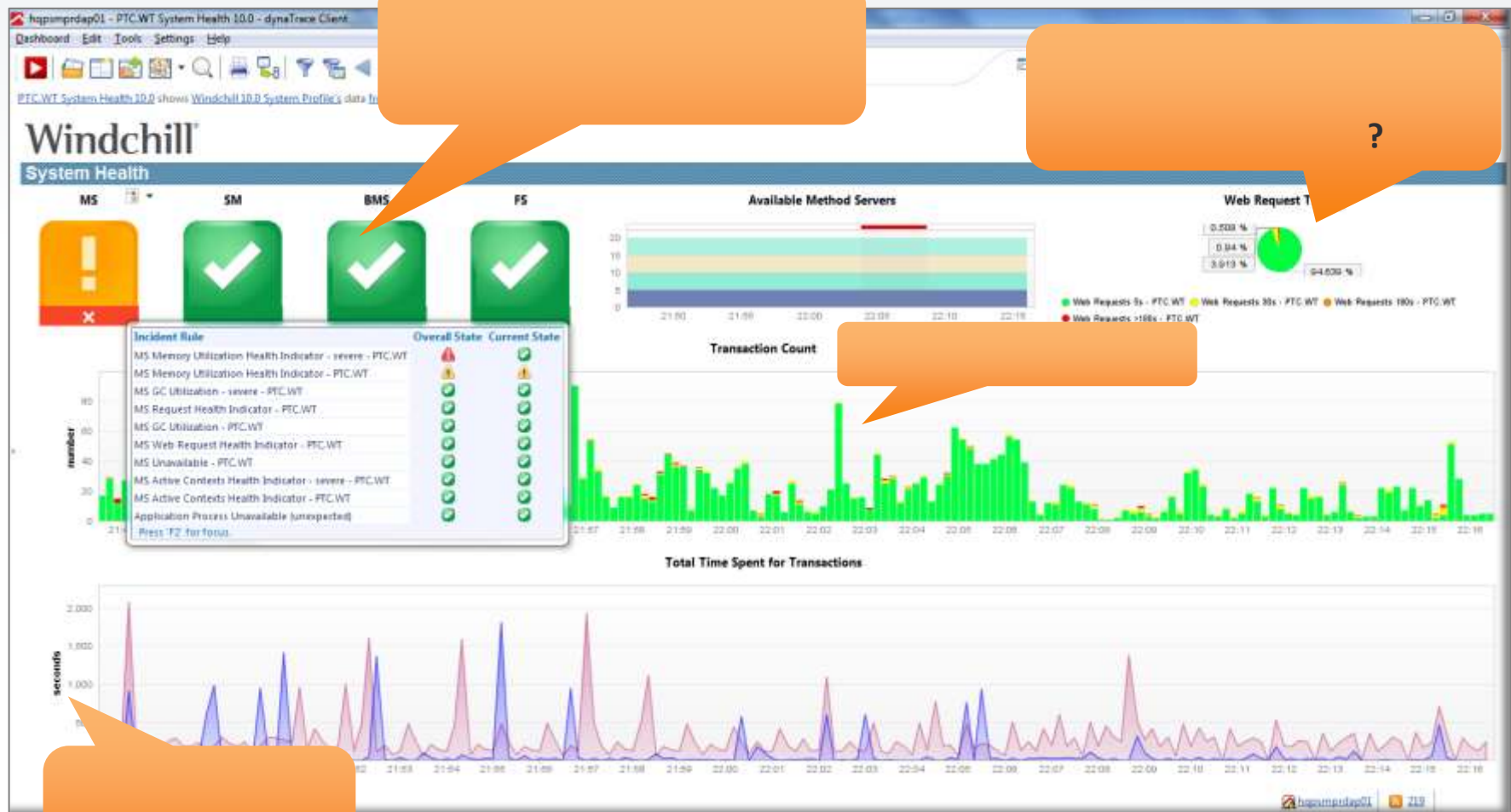
Cloud

Enterprise

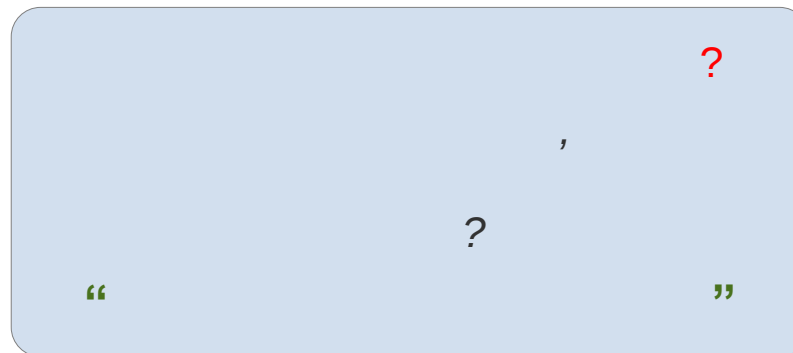
Big Data

Case Study

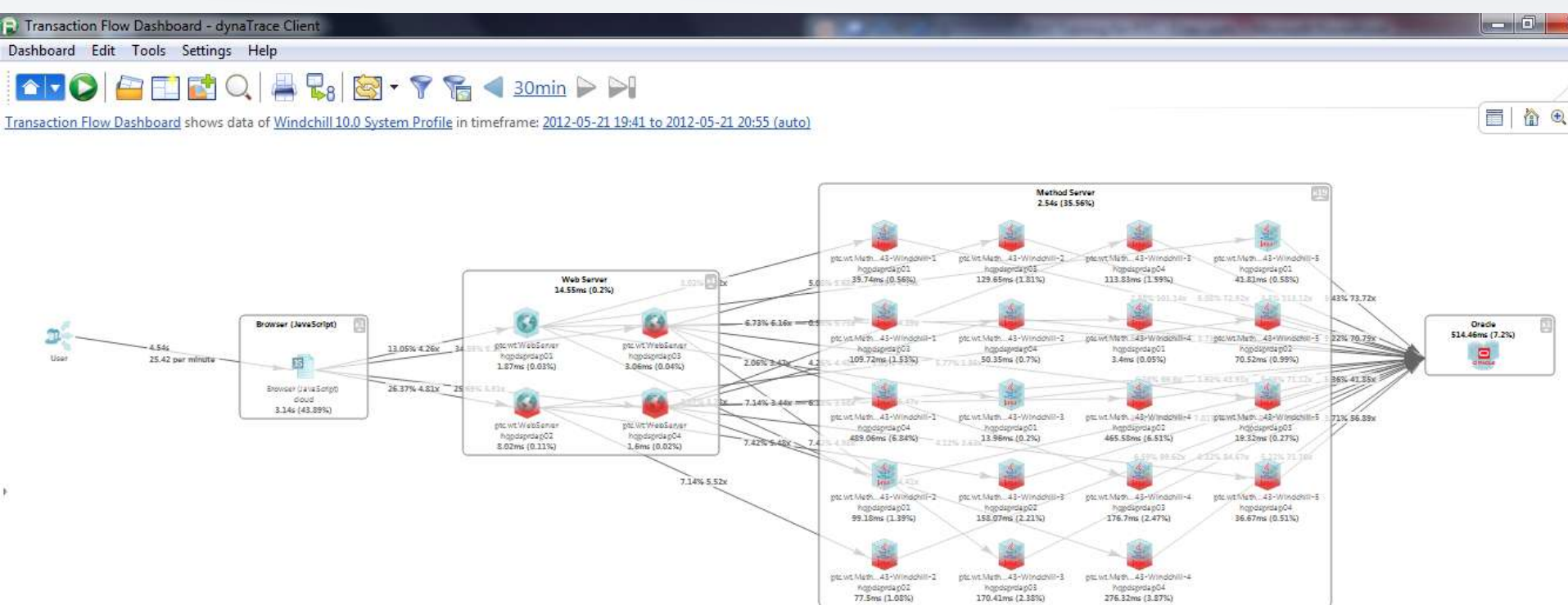
WindChill Dashboard



최종 사용자 접속 상황 및 성능 정보

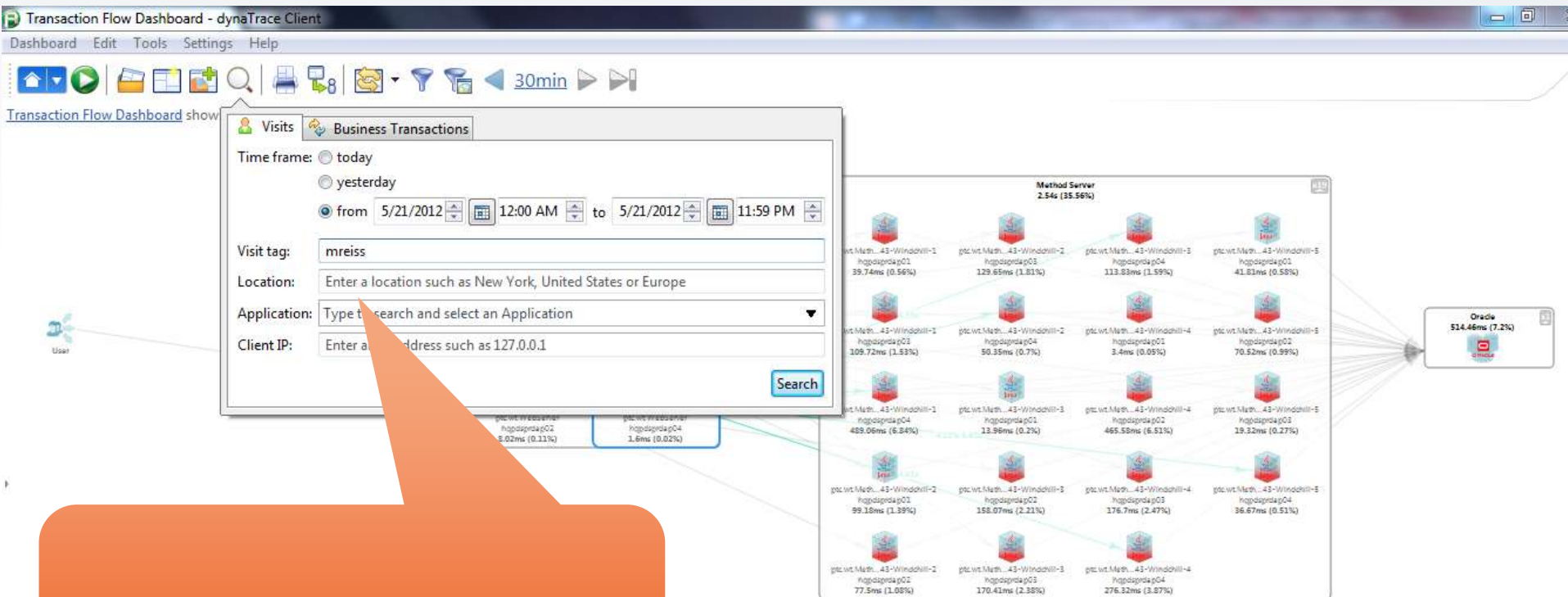


트랜잭션 흐름(Transaction Flow) 추적



100%

DB





Visits Search shows data of Windchill 10.0 System Profile

Visits



Visits (no grouping)

Selecting a single visit shows a detailed view of its page actions.

트정 사용자의 모든
트랜잭션 사용 추적
사용 패턴 및 성능 분석

UE Index: 1.00* Visits: 1

Visit	User Experience	Page Actions	Application	Browser	Client IP	Continent	Country	
Visit of 'mreiss' from Needham Heights, United	satisfied	33	pds.ptc.com	Firefox 12.0	132.253.104.200	North America	United States	2012-05-21 20:...

1 Page Actions of visit not included in session.

Page Action	End-To-End Response	Duration [ms]	Start-Time	User Experience	Client-Tim...	Network-Ti...	Server-Tim...	Size	Clickstep	Browser Errors	Failed Actions
click on "Folders" on /Windch...	client (98%)	2446.00	2012-05-21 20:44:37	satisfied	2390.57	0.00	55.43	1	-	0	0
click on "2012-05-23 Version d...	client	1231.00	2012-05-21 20:45:10	satisfied	865.64	0.00	365.36	1	-	0	0
click on "2012-04-05 Version d...	client (92%)	1450.00	2012-05-21 20:45:13	satisfied	1322.41	0.00	127.59	2	-	0	0
click on "ext-gen3389" on /Wi...	client (90%)	1620.00	2012-05-21 20:45:14	satisfied	1447.31	0.00	172.69	2	-	0	0
click on "2012-05-23 Version d...	client (99%)	1463.26	2012-05-21 20:45:22	satisfied	1435.75	0.00	27.51	1	-	0	0
click on "2012-05-23 Version d...	client (97%)	2287.73	2012-05-21 20:45:37	satisfied	2202.19	0.00	85.54	3	-	0	0
click on "2012-05-23 Version d...	client (89%)	4164.82	2012-05-21 20:45:51	tolerating	3674.92	0.00	489.89	2	-	0	0
Loading of Page /Windchill/p...	client	1285.61	2012-05-21 20:45:55	satisfied	1217.51	0.00	68.10	1	-	0	0
click on "Finish" on /Windchil...		214.09	2012-05-21 20:45:59	satisfied	192.77	0.00	21.33	1	-	0	0
Loading of Page /Windchill/p...	client	980.80	2012-05-21 20:45:59	satisfied	878.78	0.00	102.03	1	-	0	0
click on "CNS WP1 - EADS Par...	client (74%) server	2722.41	2012-05-21 20:46:03	satisfied	1990.29	0.00	732.12	5	-	0	0
click on "CNS WP1 - EADS Par...	client	1146.11	2012-05-21 20:46:09	satisfied	1033.02	0.00	113.08	2	-	0	0
click on "CNS WP1 - EADS Par...	client (99%)	2509.00					31.28	1	-	0	0
click on "CNS WP1 - EADS Par...	client (98%)	1543.18					39.79	2	-	0	0
click on "CNS WP1 - EADS Par...	client	1357.00					552.42	2	-	0	0
click on "Delete" on /Windchil...	server	1098.00					1830.44	3	-	0	0
click on "2012-05-23 Version d...	client (99%)	1427.00	2012-05-21 20:47:55	satisfied	1399.58	0.00	27.42	1	-	0	0
click on "PES WP1 - PES Softw...	client (96%)	1617.40	2012-05-21 20:48:46	satisfied	1548.98	0.00	68.42	2	-	0	0
click on "PES WP1 - PES Softw...	client	1330.00	2012-05-21 20:48:59	satisfied	1231.03	0.00	98.97	1	-	0	0

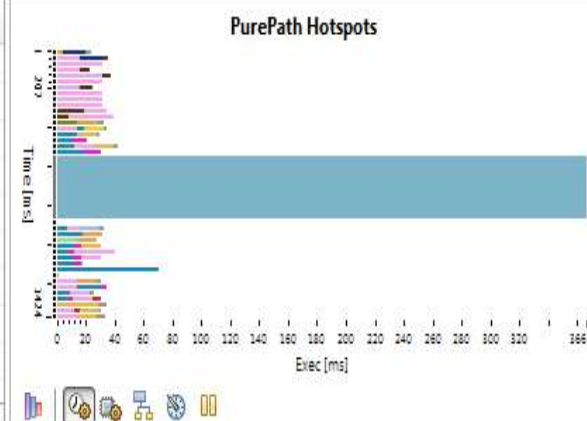
“Delete” 트랜잭션에서 성능
저하 발생 확인



Visits Search shows data of Windchill 10.0 System Profile

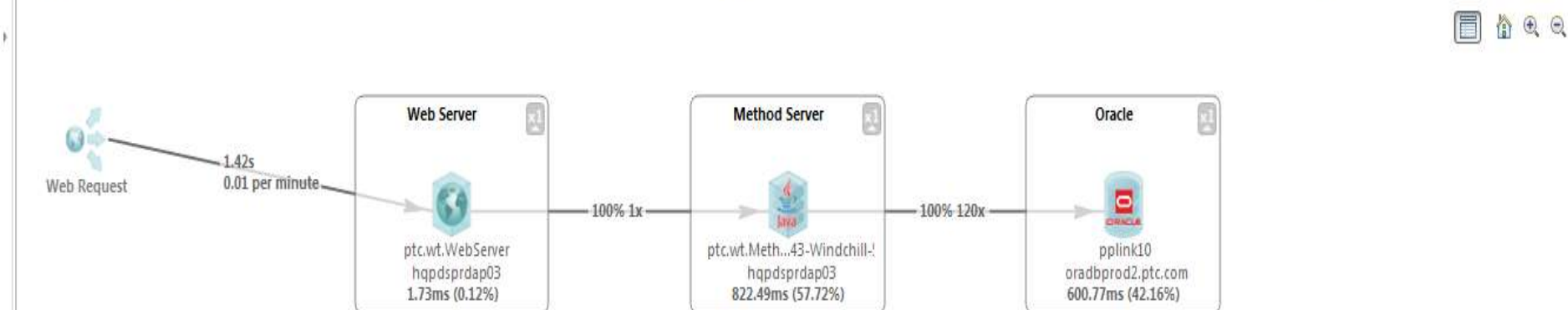
Visits Page Action PurePaths PurePaths

	Start Time	PurePath	Response Time [ms]	Breakdown
	2012-05-21 20:47:43.324	/Windchill/ptc1/comp/folderbrowser_table	398.72	cpu (77%) io (19%)
	2012-05-21 20:47:41.774	/Windchill/netmarkets/jsp/object/delete.jsp	1424.99	cpu (53%) io (47%)
	2012-05-21 20:47:40.623	/Windchill/netmarkets/jsp/util/getBundleKey.jsp	6.73	cpu (70%) io (30%)



PurePaths Contributors Errors

Total Transactions : 1 (0.01 per minute)

Failed Transactions : 0 (0 %) [hide](#)Inter Tier Time Per Transaction : 0ms (0%) [show](#)

느린 “delete” 트랜잭션의
성능 분석을 위한 전구간
추적

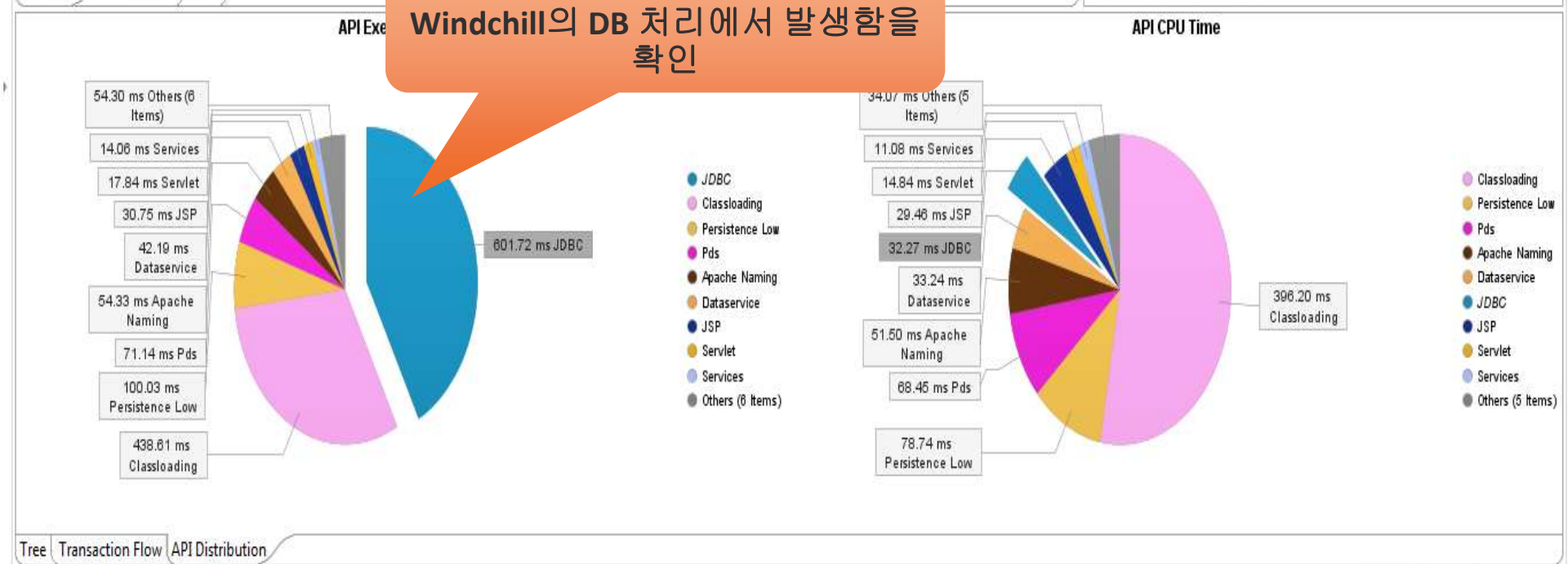
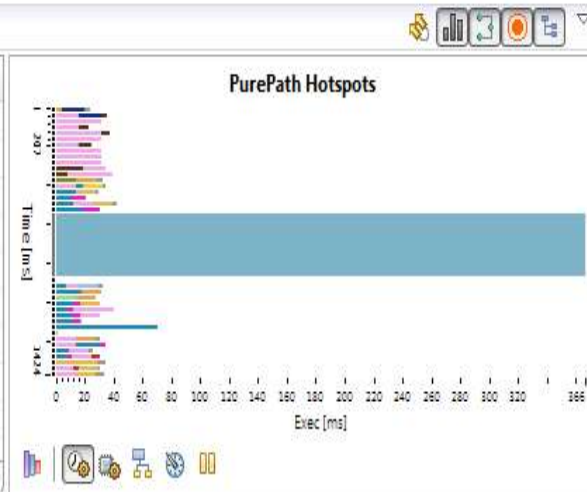
Tree Transaction Flow API Distribution



Visits Search shows data of Windchill 10.0 System Profile

Visits Page Action PurePaths PurePaths

	Start Time	PurePath	Response Time [ms]	Breakdown
	2012-05-21 20:47:43.324	/Windchill/ptc1/comp/folderbrowser_table	398.72	cpu (77%) io (19%)
	2012-05-21 20:47:41.774	/Windchill/netmarkets/jsp/object/delete.jsp	1424.99	cpu (53%) io (47%)
	2012-05-21 20:47:40.623	/Windchill/netmarkets/jsp/util/getBundleKey.jsp	6.73	cpu (70%) io (30%)

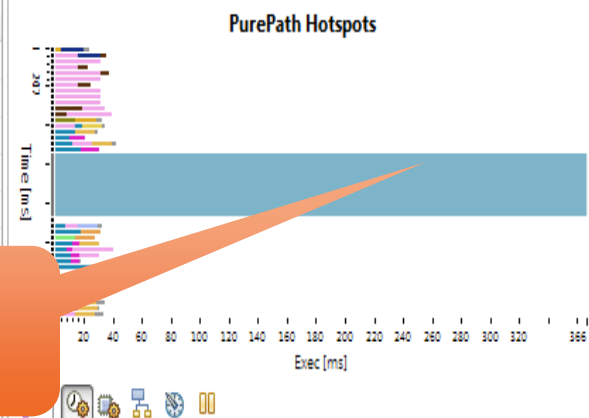




Visits Search shows data of Windchill 10.0 System Profile

Visits Page Action PurePaths PurePaths

	Start Time	PurePath	Response Time [ms]	Breakdown
	2012-05-21 20:47:43.324	/Windchill/ptc1/comp/folderbrowser_table	398.72	cpu (77%) io (19%)
	2012-05-21 20:47:41.774	/Windchill/netmarkets/jsp/object/delete.jsp	1424.99	cpu (53%) io (47%)
	2012-05-21 20:47:40.623	/Windchill/netmarkets/jsp/util/getBundleKey.jsp	6.73	cpu (70%) io (30%)



PurePaths Contributors Errors

PurePath Tree (showing only relevant nodes) ⓘ

[Show all nodes](#)

	Exec [ms]	Breakdown	API	Agent	Class
delete(WTSet)	0.00	io (96%)	Purge DEBUG	ptc.wt.MethodServer-v10.0-pds.ptc.com-443-Windchill-5...	\$Proxy10
invoke(Object, Method, Object[])	0.00	io (96%)	Services	ptc.wt.MethodServer-v10.0-pds.ptc.com-443-Windchill-5...	ServiceFact
delete(WTSet)	0.00	io (96%)	StandardPersistenceManager	ptc.wt.MethodServer-v10.0-pds.ptc.com-443-Windchill-5...	StandardPe
dispatchVetoableMultiObjectEvent(Object, String)				ptc.wt.MethodServer-v10.0-pds.ptc.com-443-Windchill-5...	StandardM
dispatchVetoableMultiObjectEvent(Object, String)				ptc.wt.MethodServer-v10.0-pds.ptc.com-443-Windchill-5...	StandardKe
notifyVetoableEvent(Object)			ProjMgmtService	ptc.wt.MethodServer-v10.0-pds.ptc.com-443-Windchill-5...	StandardPr
query(QuerySpec)			PersistenceManager	ptc.wt.MethodServer-v10.0-pds.ptc.com-443-Windchill-5...	StandardPe
query(StatementSpec, AccessControllerProcessor)	0.00	io (99%)	Persistence Low	ptc.wt.MethodServer-v10.0-pds.ptc.com-443-Windchill-5...	PersistentC
query(WTConnection, StatementSpec, AccessCont...cessor, F	4.20	io (99%)	Pds	ptc.wt.MethodServer-v10.0-pds.ptc.com-443-Windchill-5...	SQLDataba
prepareStatement(String)	0.35	cpu (100%)	JDBC	ptc.wt.MethodServer-v10.0-pds.ptc.com-443-Windchill-5...	PhysicalCo
executeQuery()	0.00	io (100%)	JDBC	ptc.wt.MethodServer-v10.0-pds.ptc.com-443-Windchill-5...	OraclePrep
socketRead0(FileDescriptor, byte[], int, int, int)	365.58	io (100%)	JDBC	ptc.wt.MethodServer-v10.0-pds.ptc.com-443-Windchill-5...	SocketInpu
notifyVetoableMultiObjectEvent(Object)	0.00	cpu (79%) io	FedInfra	ptc.wt.MethodServer-v10.0-pds.ptc.com-443-Windchill-5...	StandardFe

느린 응답시간의
원인이 되는 코드 부분

Tree Transaction Flow API Distribution

3 rows found (1 row selected)

bos123632n02

0



Visits Search shows data of Windchill 10.0 System Profile

Visits Page Action PurePaths PurePaths

	Start Time	PurePath	Response Time [ms]	Breakdown
	2012-05-21 20:47:43.324	/Windchill/ptc1/comp/folderbrowser_table	398.72	
	2012-05-21 20:47:41.774	/Windchill/netmarkets/jsp/object/delete.jsp	1424.99	cpu
	2012-05-21 20:47:40.623	/Windchill/netmarkets/jsp/util/getBundleKey.jsp	6.73	

느린 트랜잭션에서 수행된 SQL
코드 확인

PurePaths Contributors Errors

PurePath Tree (showing only relevant nodes) ⓘ

	Exec [ms]	Breakdown
delete(WTSet)	0.00	io (S)
invoke(Object, Method, Object[])	0.00	io (S)
delete(WTSet)	0.00	io (S)
dispatchVetoableMultiObjectEvent(Object, String)	0.00	io (S)
dispatchVetoableMultiObjectEvent(Object, String)	0.00	io (S)
notifyVetoableEvent(Object)	0.00	io (S)
query(QuerySpec)	0.00	io (S)
query(StatementSpec, AccessControllerProcessor)	0.00	io (S)
query(WTConnection, StatementSpec, AccessControllerProcessor, F)	4.20	io (S)
prepareStatement(String)	0.35	cpu (1)
executeQuery()	0.00	io (1)
socketRead0(FileDescriptor, byte[], int, int, int)	365.58	io (1)
notifyVetoableMultiObjectEvent(Object)	0.00	cpu (79%)

Details

Node Details

Method: executeQuery()

Class: oracle.jdbc.driver.OraclePreparedStatementWrapper

Argument: 1 / 5

```

SELECT 0 FROM DUAL WHERE EXISTS (SELECT 1 FROM WTtypeDefinition
A0,InformationResource A1,Deliverable A2 WHERE ((A2.idA3A5 = A1.idA2A2)
AND ((A1.idA3A6 = A0.idA2A2) OR (A1.idA3A6 = A0.idA3masterReference))
AND (A0.branchIditerationInfo = ?))) UNION SELECT 1 FROM DUAL WHERE
EXISTS (SELECT 1 FROM WTPart A0,InformationResource A1,Deliverable A2
WHERE ((A2.idA3A5 = A1.idA2A2) AND ((A1.idA3A6 = A0.idA2A2) OR
(A1.idA3A6 = A0.idA3masterReference)) AND (A0.branchIditerationInfo = ?)))
UNION SELECT 2 FROM DUAL WHERE EXISTS (SELECT 1 FROM
EPMCheckpoint A0,InformationResource A1,Deliverable A2 WHERE
((A2.idA3A5 = A1.idA2A2) AND ((A1.idA3A6 = A0.idA2A2) OR (A1.idA3A6 =
A0.idA3masterReference)) AND (A0.branchIditerationInfo = ?))) UNION
SELECT 3 FROM DUAL WHERE EXISTS (SELECT 1 FROM WTChangeIssue
A0,InformationResource A1,Deliverable A2 WHERE ((A2.idA3A5 = A1.idA2A2)
AND ((A1.idA3A6 = A0.idA2A2) OR (A1.idA3A6 = A0.idA3masterReference))
AND (A0.branchIditerationInfo = ?))) UNION SELECT 4 FROM DUAL

```

Return:

Agent: ptc.wt.MethodServer-v10.0-pds.ptc.com-443-Windchill-5@hqpdspdrap03:1807

API: JDBC

Thread Name: ajp-bio-8114-exec-37 <1602405700>

Elapsed Time [ms]: 547.36

Time Details

	Total	Exec	%
Execution Time [ms]:	365.58	0.00	0.00
CPU Time [ms]:	0.67	0.00	0.00

Copy Selected Copy All Close

Tree Transaction Flow API Distribution



Visits Search shows data of Windchill 10.0 System Profile

Visits Page Action PurePaths PurePaths

	Start Time	PurePath	Response Time [ms]	Breakdown
	2012-05-21 20:47:43.324	/Windchill/ptc1/comp/folderbrowser_table	398.72	
	2012-05-21 20:47:41.774	/Windchill/netmarkets/isn/object/delete.isn	1424.99	cpu (100%)
	2012-05-21 20:47:40.623	/Windchill/ptc1/comp/folderbrowser_table	6.73	cpu (100%)

Details...

Drill Down

Show in Dashboard

Add Snapshot to Dashboard

Export...

Result Limit (PurePaths)

Select PurePath for comparison

Compare PurePaths

Find...

Ctrl+F

Select all

Deselect all

Copy

Ctrl+C

Refresh Dashlet

Ctrl+F5

Dashlet Properties...

Alt+Enter

Toggle Header

Ctrl+H

PurePath Tree (showing only relevant)

	Exec [ms]	Breakdown
delete(WTSet)	0.00	io (94%)
invoke(Object, Method, Object[])	0.00	io (94%)
delete(WTSet)	0.00	io (94%)
dispatchVetoableMultiObjectEvent	0.00	io (94%)
dispatchVetoableMultiObjectEvent	0.00	io (94%)
notifyVetoableEvent	0.00	io (99%)
query(QuerySpec)	0.00	io (99%)
query(StatementSpec)	0.00	io (99%)
query(WTConnection, StatementSpec, AccessControllerProcessor, Filter)	4.20	io (99%)
prepareStatement(String)	0.35	cpu (100%)
executeQuery()	0.00	io (100%)
socketRead0(FileDescriptor, byte[], int, int, int)		
notifyVetoableMultiObjectEvent(Object)		

Tree Transaction Flow API Distribution

3 rows found (1 row selected)

Export Session

Session for 'Windchill 10.0 System Profile' with 2 selected PurePaths

Exports the session to a ".dts" file

Properties

Name: mreiss - slow delete transaction

Description: Whole bunch of errors this morning.... soon after turning on UEM.

File: C:\Users\dmaaya0\Desktop\mreiss - slow delete transaction.dts

Browse...

Content

PurePaths and time series

PurePaths

Time series

Options

☒ Remove confidential strings from Session

Hint

Enter a name for this session.



Export

Cancel

Technical Support 에
보낼 모든 정보 저장 및
공유

ptc.wt.MethodServer-v10.0-pds.ptc.com-443-Windchill-5...

ptc.wt.MethodServer-v10.0-pds.ptc.com-443-Windchill-5...

차세대 APM을 사용하는 많은 고객들...

Financial Services



SaaS & Cloud



eCommerce



Telco



Insurance



ISV



Government



Other





Compuware
APM
Simply Smarter