InterMax

End to End Monitoring Solutions

The Next Revolution is Here

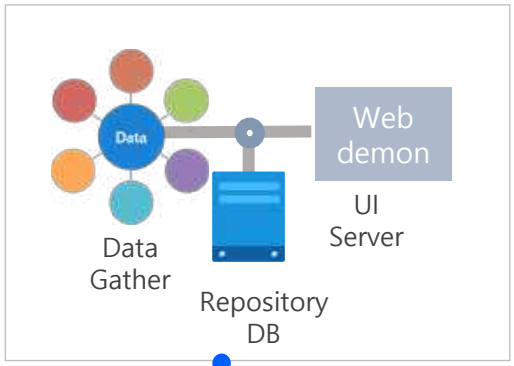
EXEM CO., LTD.

DATA ARTIST GROUP exem

What is InterMax's End-to-End Performance Management?

End-to-End Transaction Performance Management in a Complex Business Service Environment Composed of N-Tiers

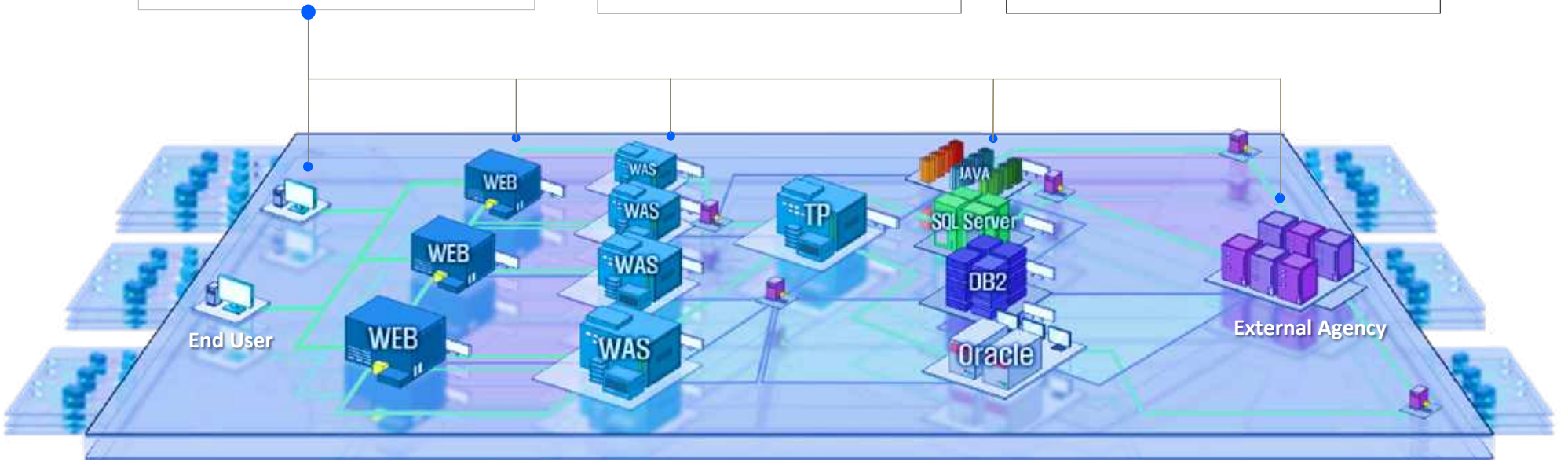
Integrated Performance Management of Transactions Across the Entire System From the User Terminal (Browser) to WEB~WAS~TP~DB



"**Real-time Monitoring Feature**" identifies in which section out of many servers the error or performance degradation was generated from the transaction point of view.

"**Real-time Diagnosis**" helps to quickly identify the root cause of error/performance delays.

"**Post Analysis Feature**" maximizes the stability of system operation by providing preventative measures.

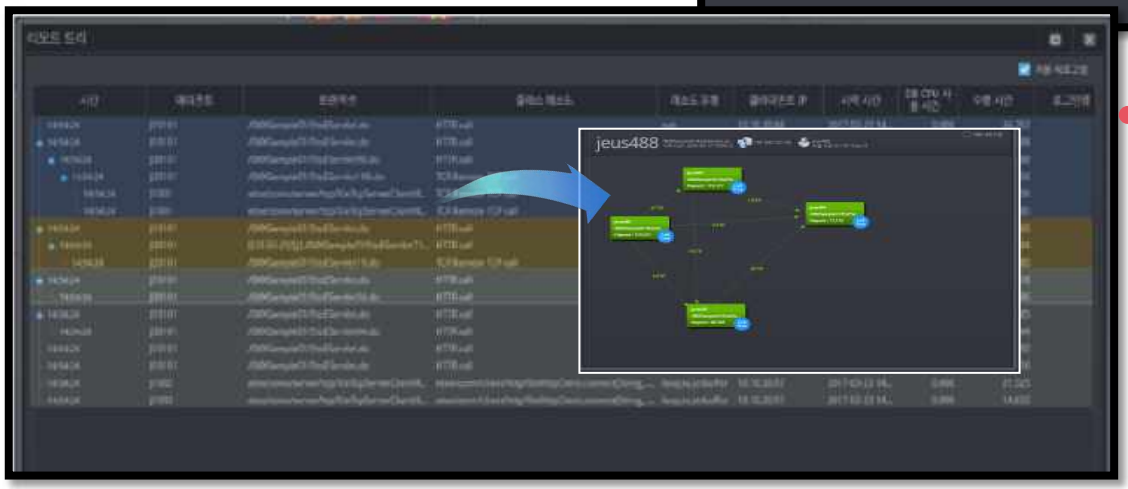


(Special Features) – Topology view, Real-time Remote Tree

- Provides Topology View – Easily identify the transaction process between nodes across the entire system and quickly detect errors through real-time events (Useful)
- Provides Remote Tree – With a call tree view of a transaction being processed in real-time, identify in which section the performance delay is taking place (For Identifying External Institution Delays/Errors)

[Topology View]

- Monitoring of real-time transaction situation of the entire system (Time spent between nodes, number of transaction processed between nodes, grouping)
- Provides alarm generation status and detailed analysis by each node (group) by linking with real-time events.

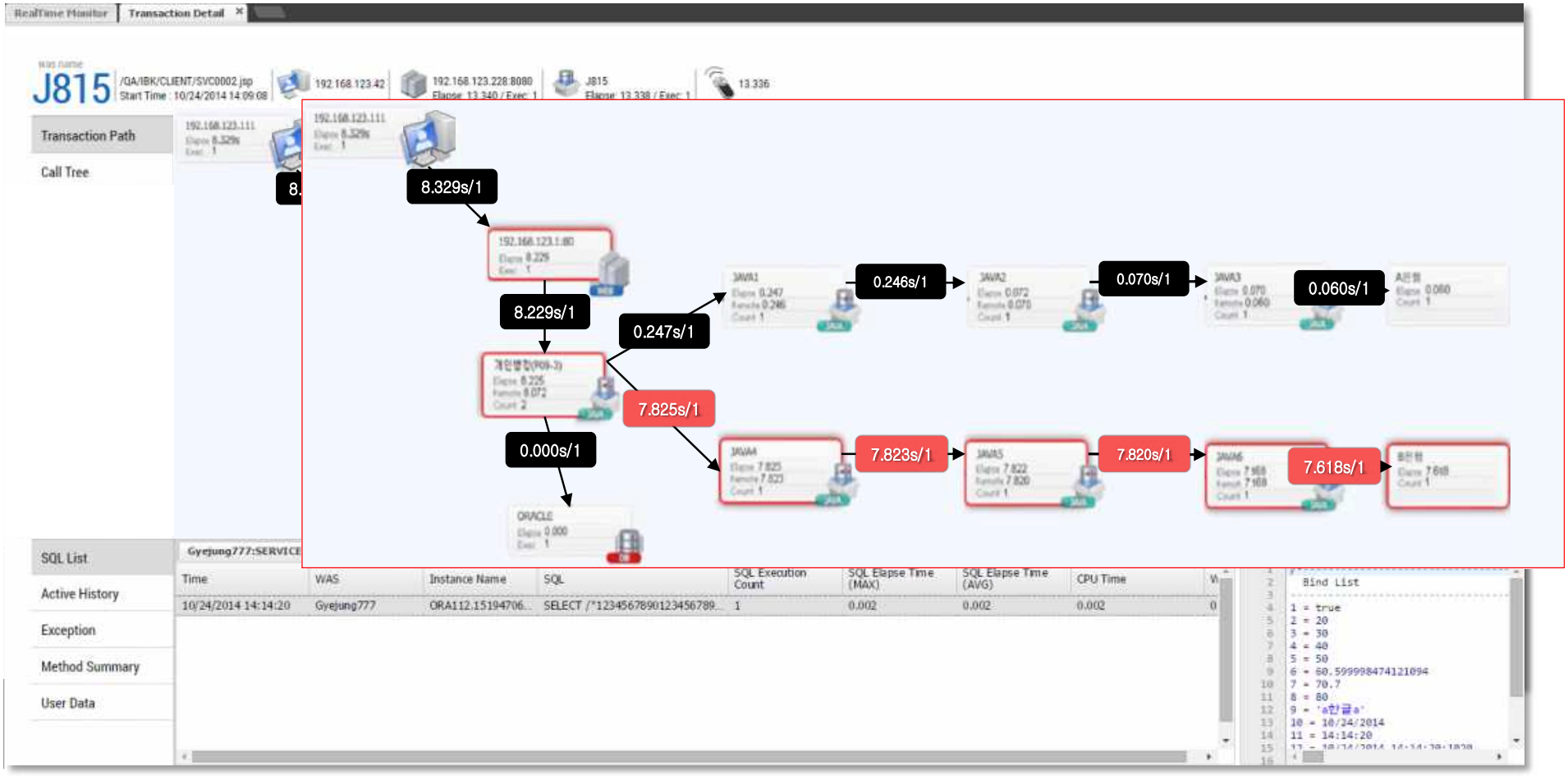


[Remote Tree]

- With the call tree view of an active transaction, you can intuitively identify the section in which the AP level's performance delay is taking place.
- Displays the status of each transaction's process between nodes with a call tree view.

(Special Features) – Transaction Path view

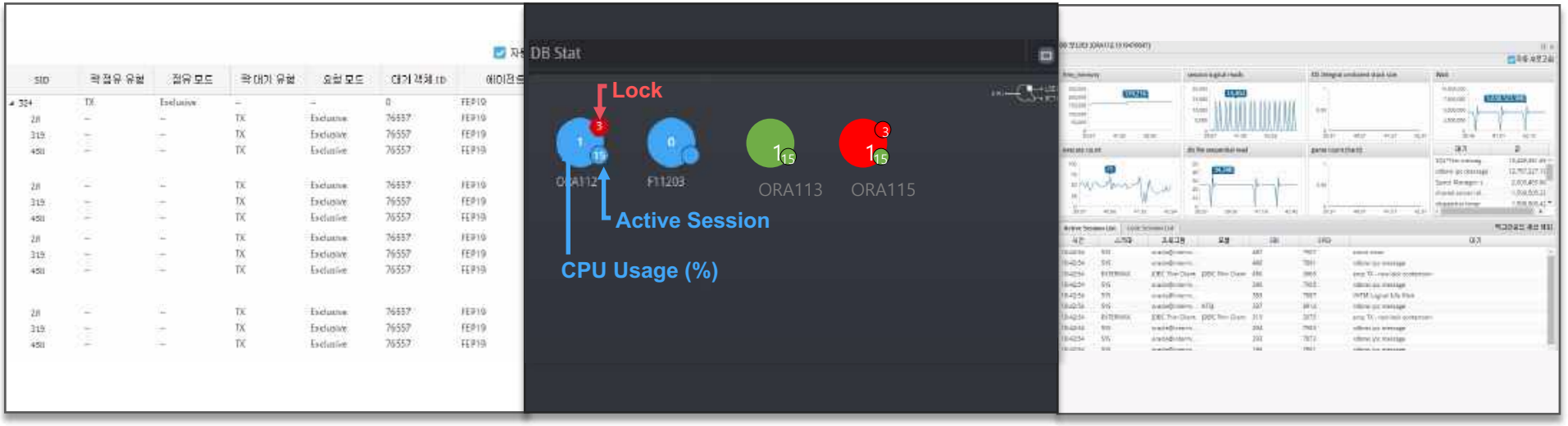
- Transaction Path View – Allows you to intuitively identify the delay section by displaying each transaction's end-to-end flow and elapsed time between nodes.
- A separate icon is used to represent each section from user (CS, Browser) – WEB – WAS – TP – DB – Remote.



(Special Features) – WAS + DB Connection Monitoring

DB Platform Performance Monitoring with a WAS+DB Integrated Performance Management Tool

In the event of an individual SQL's performance delay, you can use the DB Connection Monitoring View to quickly diagnose performance up to the DB platform.



DB Lock Tree Details Monitoring

Provides lock information in a tree structure of holder and waiter sessions.

DB Instance Monitoring

Displays monitoring DB's CPU usage, lock generation and main stats
Displays color according to threshold values set in the **Alert Configuration**

Blue: Normal Orange: Warning Red: Critical

Specific DB Instance Details Monitoring

- Provides real-time graphs of DB's main stats and waits
- Displays detailed information about active sessions and lock sessions.

(Special Features) – WAS + DB Connection Monitoring

- Check DB session info on WAS active transaction list
- Monitor by connecting the DB Lock Holder and Waiter to WAS transaction
- View DB execution time and workload and wait status info at a glance.

Patented

WAS Transaction and DB Session Connected Analysis

DB Session Info

WAS Transaction

SID	Hold Lock Type	Hold Mode	Wait Lock Type	Request Mode	Wait Object ID	Agent	Transaction	Class Method	Client IP	Log... Na...	Start Time	CPU Time	Elaps... Time
137	TX	Exclusive	--	--	0	vmware_jeus_agent	/IMX_Test/DB_Lock.do	test_InterMax/dblock.do...	192.168.123.87		19:34:25	0.000	16.820
153	--	--	TX	Exclusive	52519	vmware_jeus_agent	/IMX_Test/DB_Lock.do	oracle/jdbc/driver/Oracl...	192.168.123.87		19:34:11	0.961	30.479
141	--	--	TX	Exclusive	52519	vmware_jeus_agent	/IMX_Test/DB_Lock.do	oracle/jdbc/driver/Oracl...	192.168.123.87		19:34:11	1.369	30.477
131	--	--	TX	Exclusive	52519	vmware_jeus_agent	/IMX_Test/DB_Lock.do	oracle/jdbc/driver/Oracl...	192.168.123.87		19:34:26	0.324	15.601
146	--	--	TX	Exclusive	52519	vmware_jeus_agent	/IMX_Test/DB_Lock.do	oracle/jdbc/driver/Oracl...	192.168.123.87		19:34:19	1.071	22.721

Transaction generated
DB Lock Holder and Waiter info

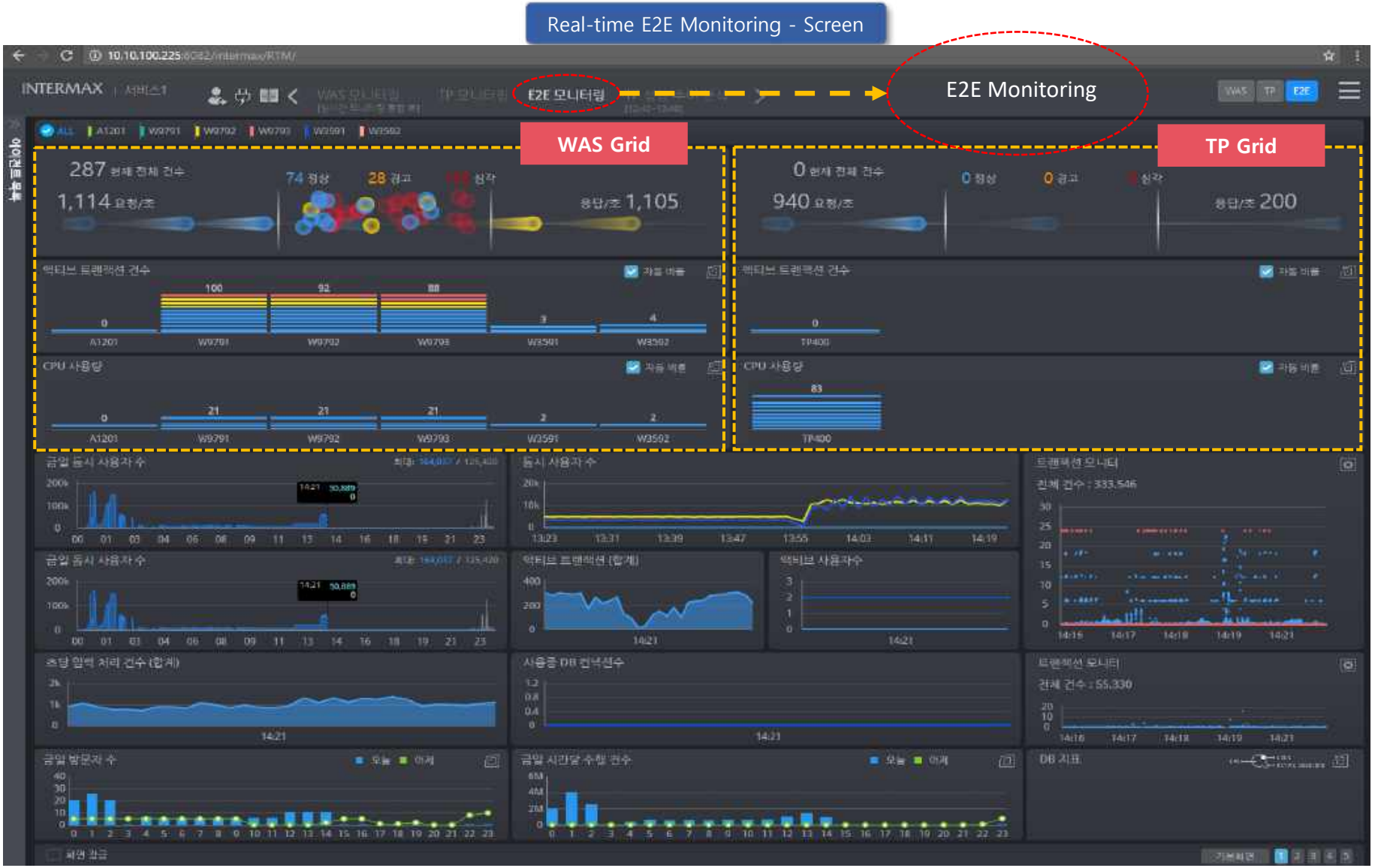
WAS Transaction

DB Session Info

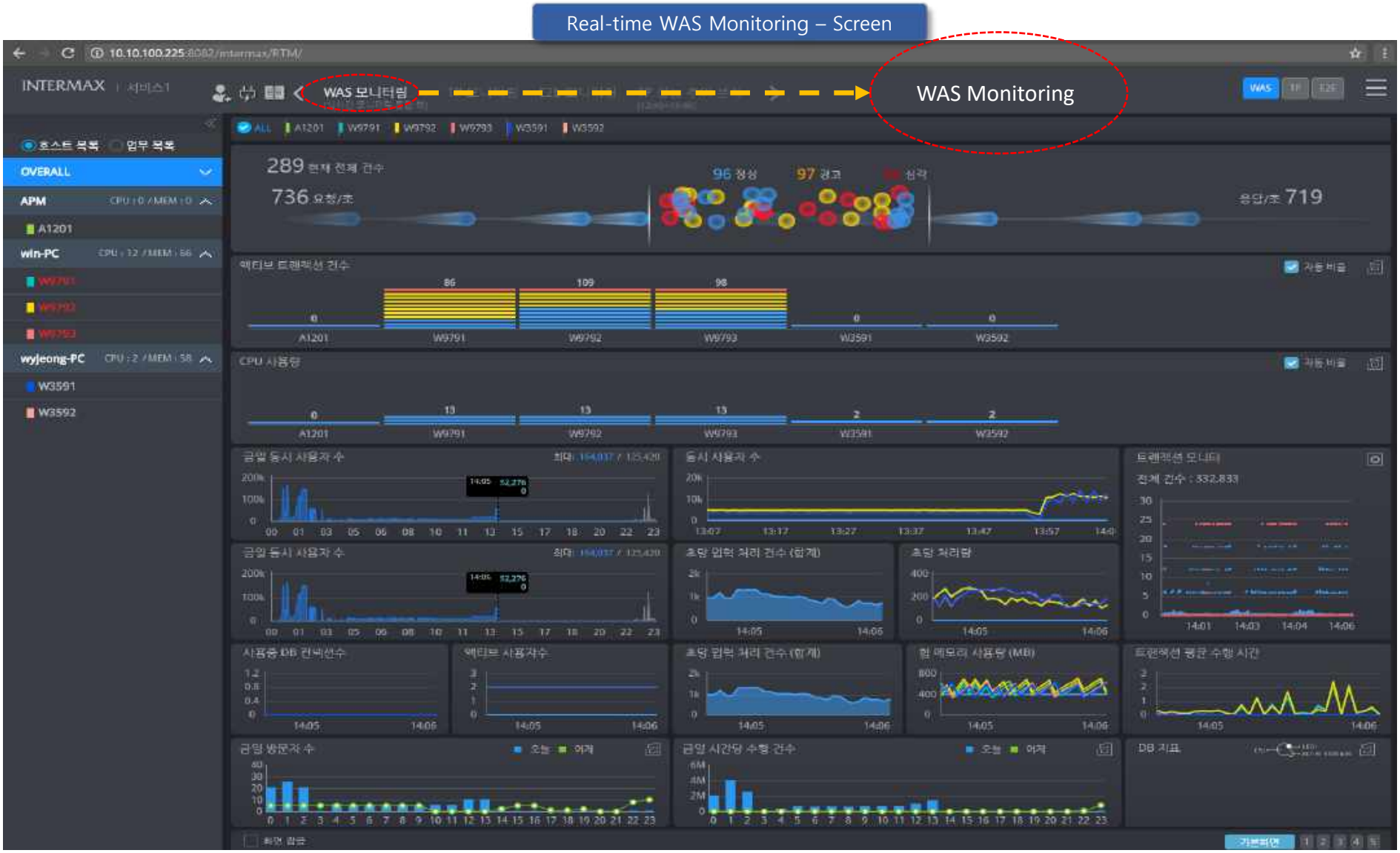
Agent	Transaction	Class Method	Elapse Time	DB Time	Wait Time	Pool	SID	State	SQL 1	SQL Execution Count	Fetch Count	Prepare Count	PGA Usage	Logical Reads
MCA104	[MCA] ibk/jdg/server/cs/Rea...	ibk/xm/testcase/XmSleep.sleep(long)	0.010	0.000	0.000		0	SLEEPING		0	0	0	0	0
MCA104	[MCA] ibk/jdg/server/cs/Rea...	ibk/xm/testcase/XmSleep.sleep(long)	0.037	0.000	0.000		0	SLEEPING		0	0	0	0	0
Gyejung	SERVICE=GYE_SVC0001	ibk/xm/testcase/XmSleep.sleep(long)	0.208	0.000	0.000	IBKTEST	430	SLEEPING	SELECT /*1234567890...	1	0	1	0	0
Gyejung17	SERVICE=GYE_SVC0001	ibk/xm/testcase/XmSleep.sleep(long)	0.421	0.000	0.000	IBKTEST	444	SLEEPING	SELECT /*1234567890...	1	0	1	0	0
JEUS815	/QAVIBK/CLIENT/SVC0001.jsp	ibk/xm/client/XmClient.connect(byte)	2.038	0.000	0.000		0	NETWORK_IO		0	0	0	0	0
JEUS815	/QAVIBK/CLIENT/SVC0001.jsp	ibk/xm/client/XmClient.connect(byte)	2.314	0.000	0.000		0	NETWORK_IO		0	0	0	0	0

Transaction executed
SQL's DB workload info

(Feature) Real-time Monitoring – E2E Monitoring Main Screen

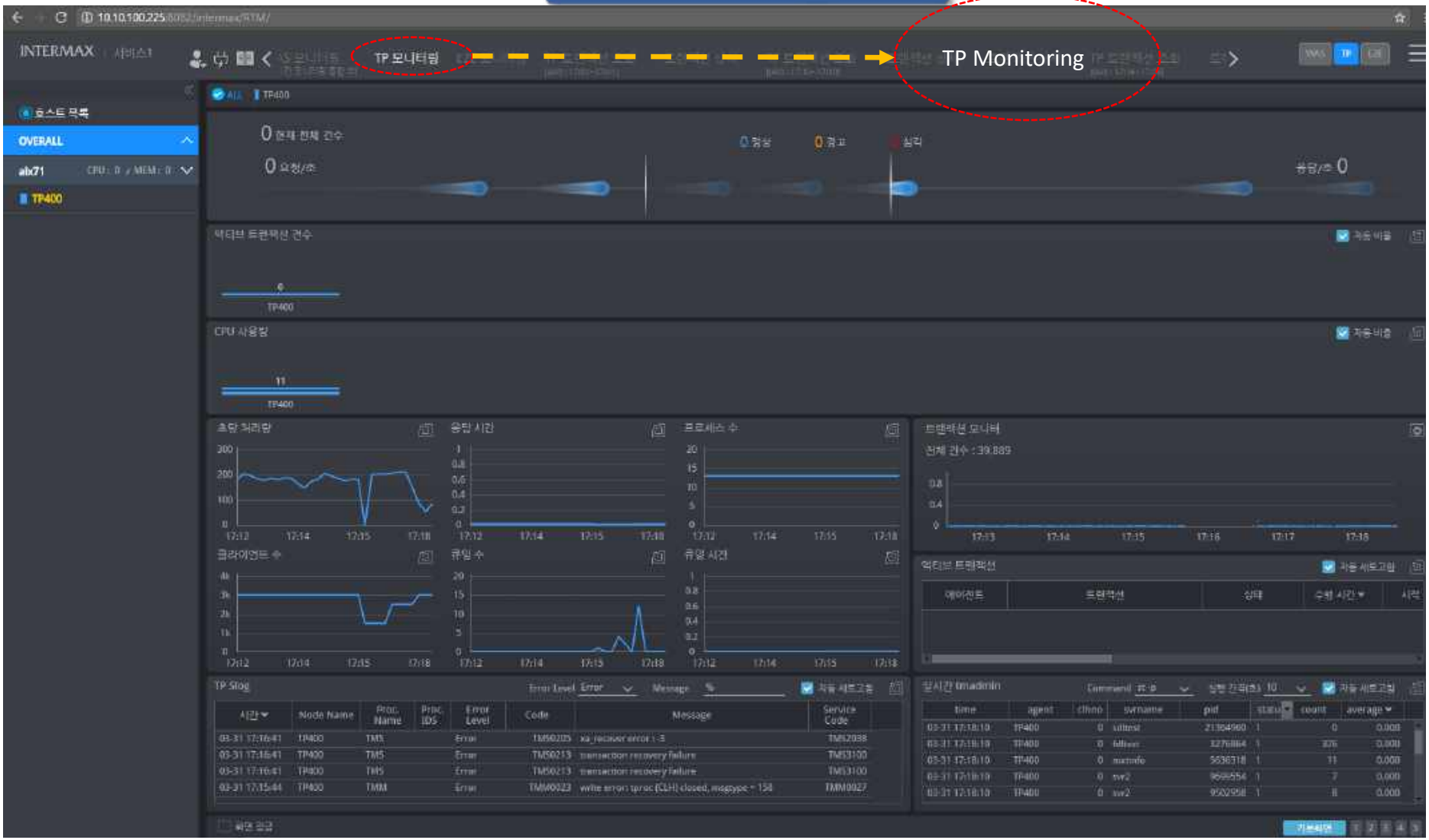


(Feature) Real-time Monitoring – WAS Monitoring Main Screen



(Feature) Real-time Monitoring – TP Monitoring Main Screen

Real-time TP Monitoring - Screen



(Feature) Real-time Monitoring – Only the active transactions that are currently in progress are retrieved on the Active Transaction List (1/2)

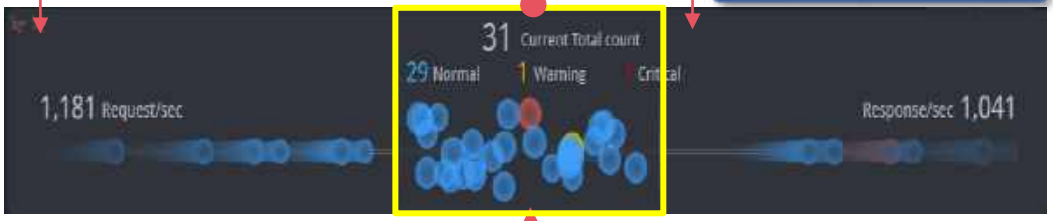
- Active Monitor : Real-time request process performance monitoring / Identify delays in the Transaction Pool
- Check detailed information on the delayed transactions.

As transactions bottleneck or get delayed, the number of active services increase and the red dots will eventually increase.

Request

Response

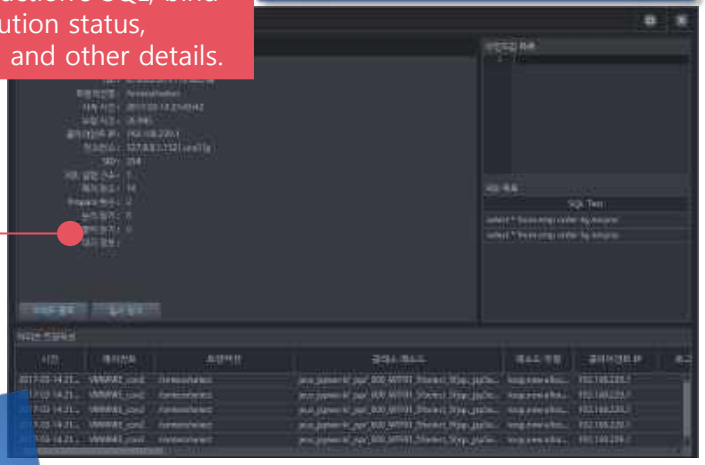
[Activity Monitor]



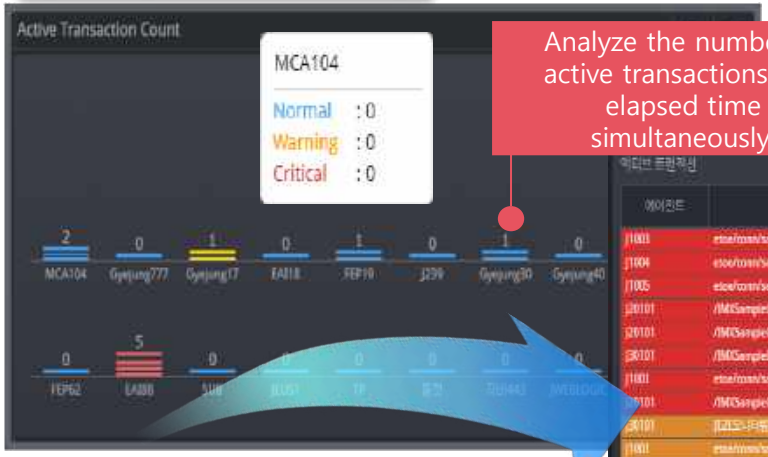
Transaction Pool

Provides active transaction's SQL, bind variables, execution status, Snapshot per second and other details.

[Active Transaction Detail]



[Activity Transaction Count]



Analyze the number of active transactions and elapsed time simultaneously.

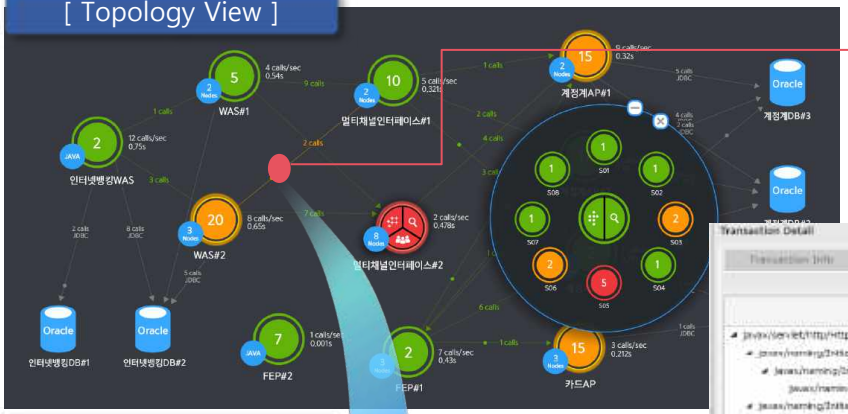
When you click on the bottleneck time point, it provides the details of the active transaction in progress.

Active Transaction List]

(Feature) Real-time Monitoring – View the total system call tree of the active transactions currently in progress.

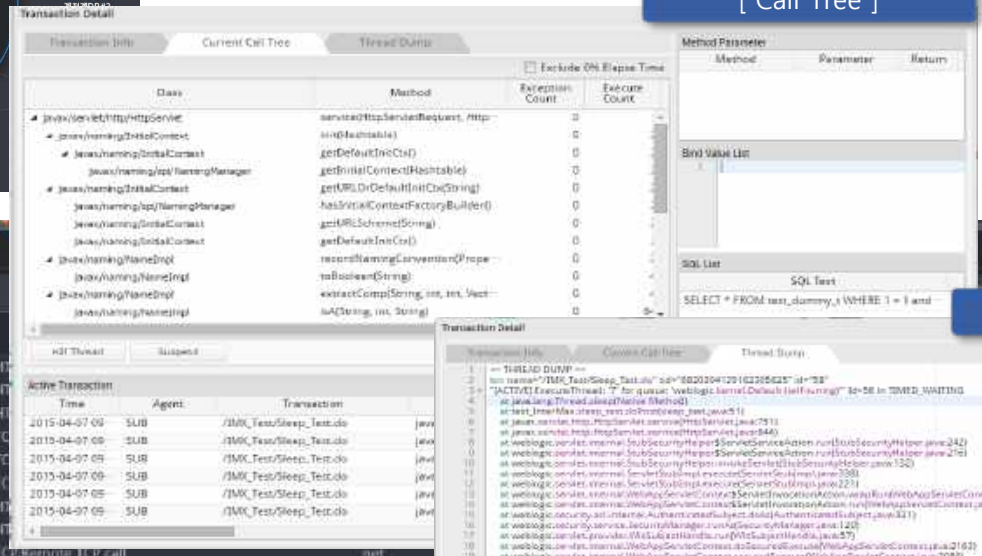
- Provides class elapsed time executed in the transaction and the method type, execution count and other information.
- Provides the call-tree statistics data by each section for the entire system and can be viewed at a glance.

[Topology View]

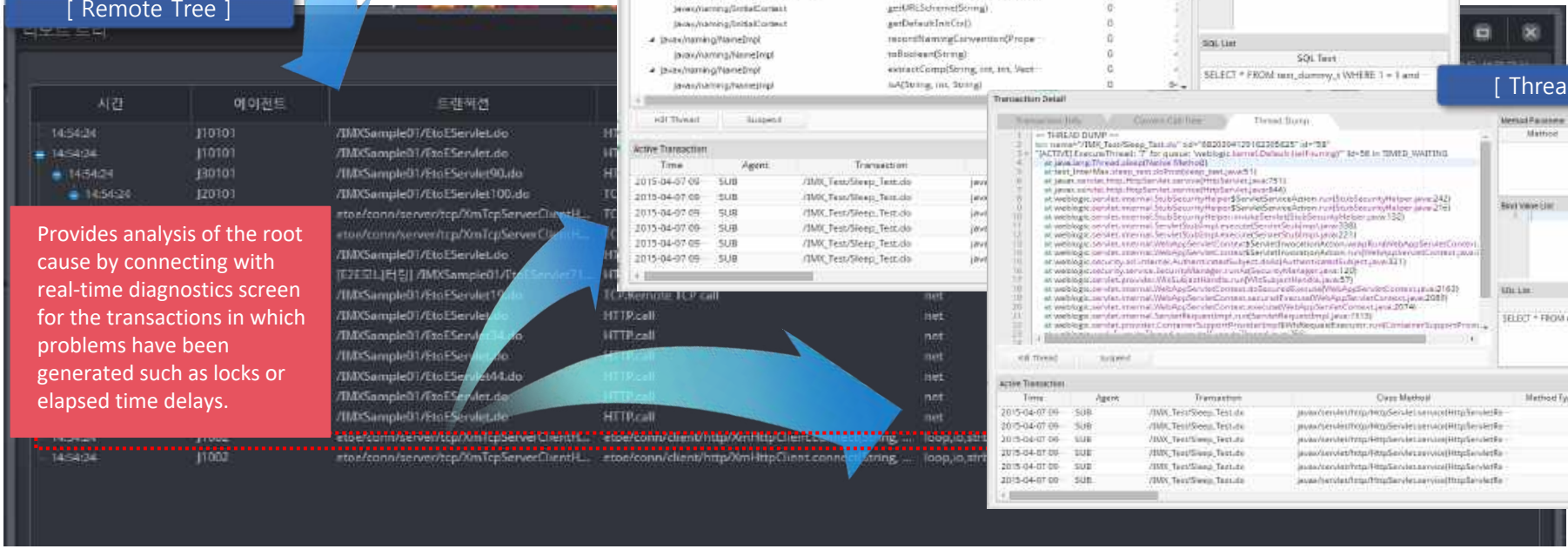


On the Real-time Topology View,
it provides 'Remote Tree' and the 'Real-time Pathview'
which can trace the active transaction's call information throughout the entire system in real-time

[Call Tree]

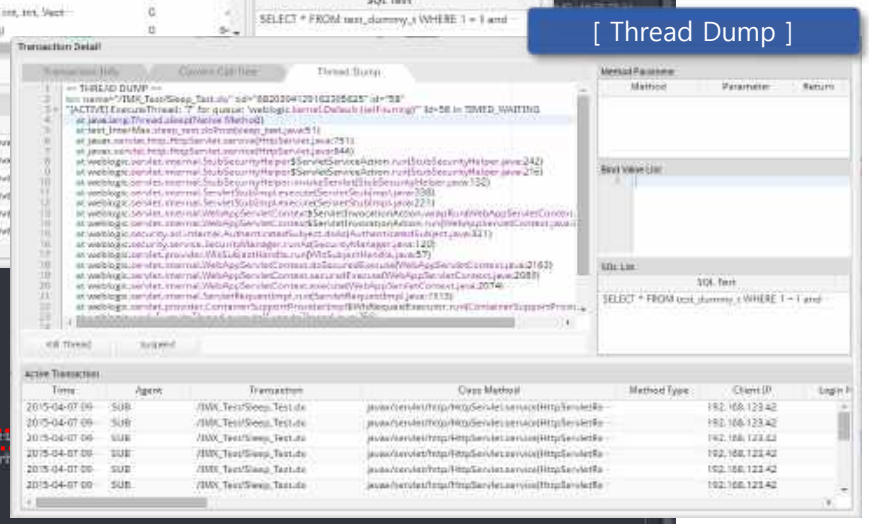


[Remote Tree]



Provides analysis of the root cause by connecting with real-time diagnostics screen for the transactions in which problems have been generated such as locks or elapsed time delays.

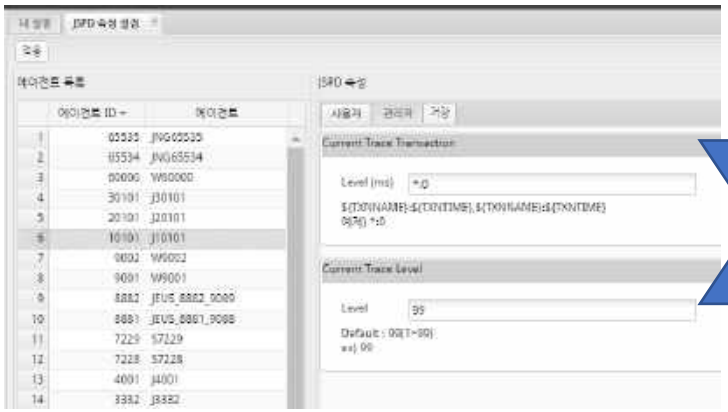
[Thread Dump]

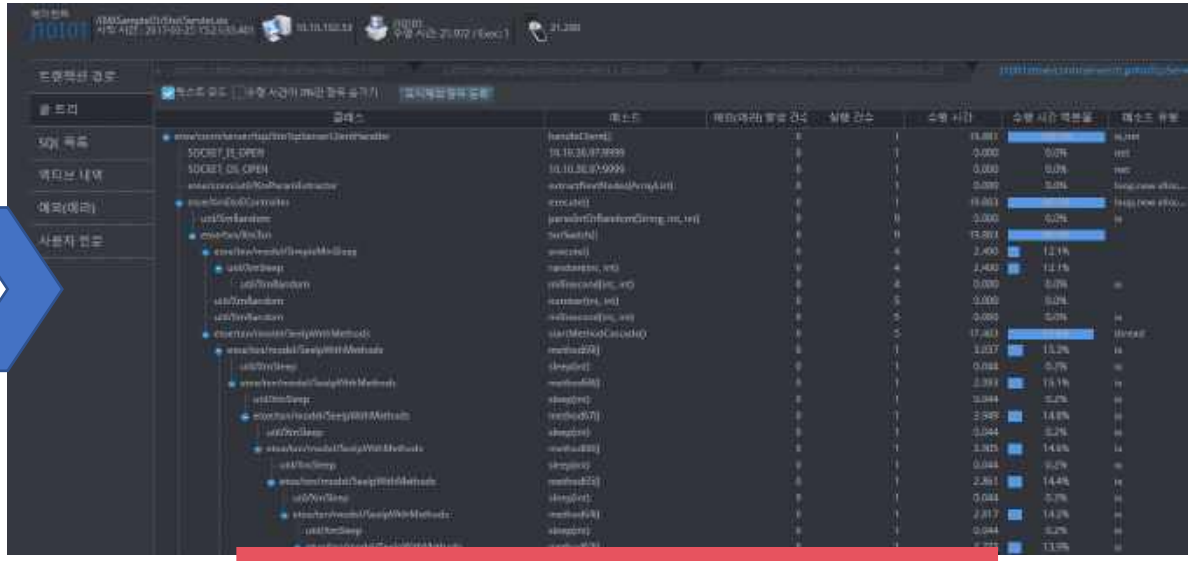


(Feature) Real-time Monitoring – Adjust analysis level (depth or top/bottom structure information) dynamically without process restart.

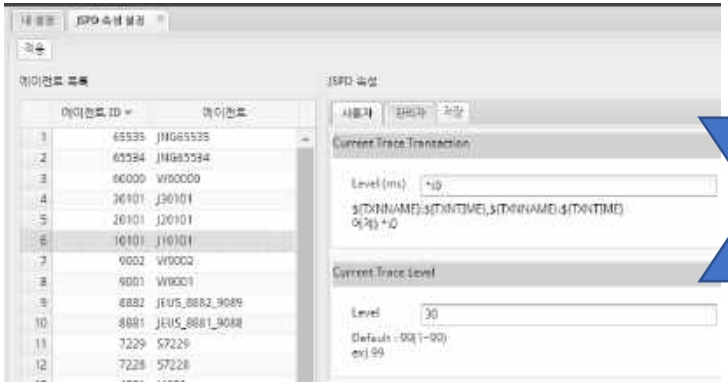
- Make changes to the call tree's collection depth and apply in real-time through environment settings for each agent.

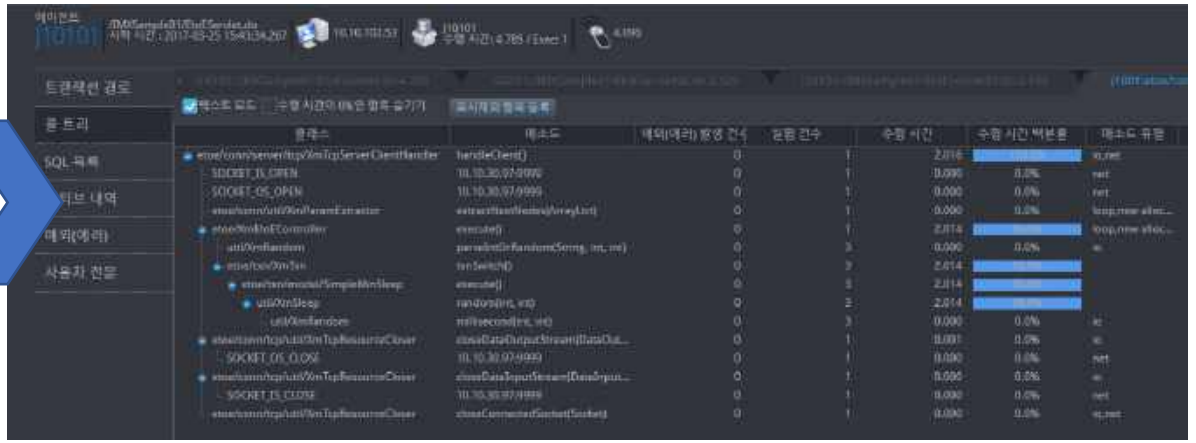
[Trace Level Setting 99(Max)]





[Trace Level Setting 30]

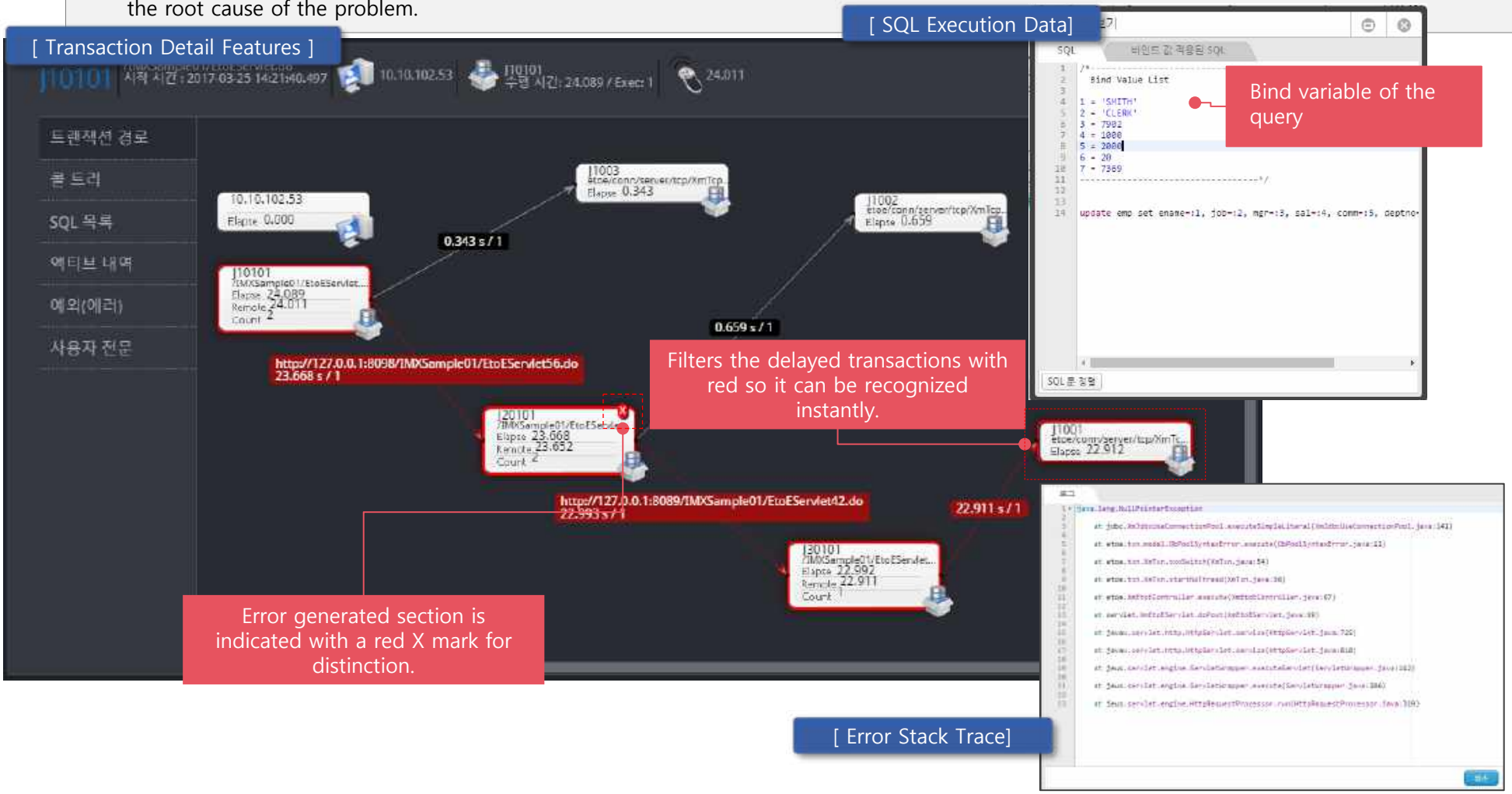




Adjust the call tree's collection level and apply in real-time.

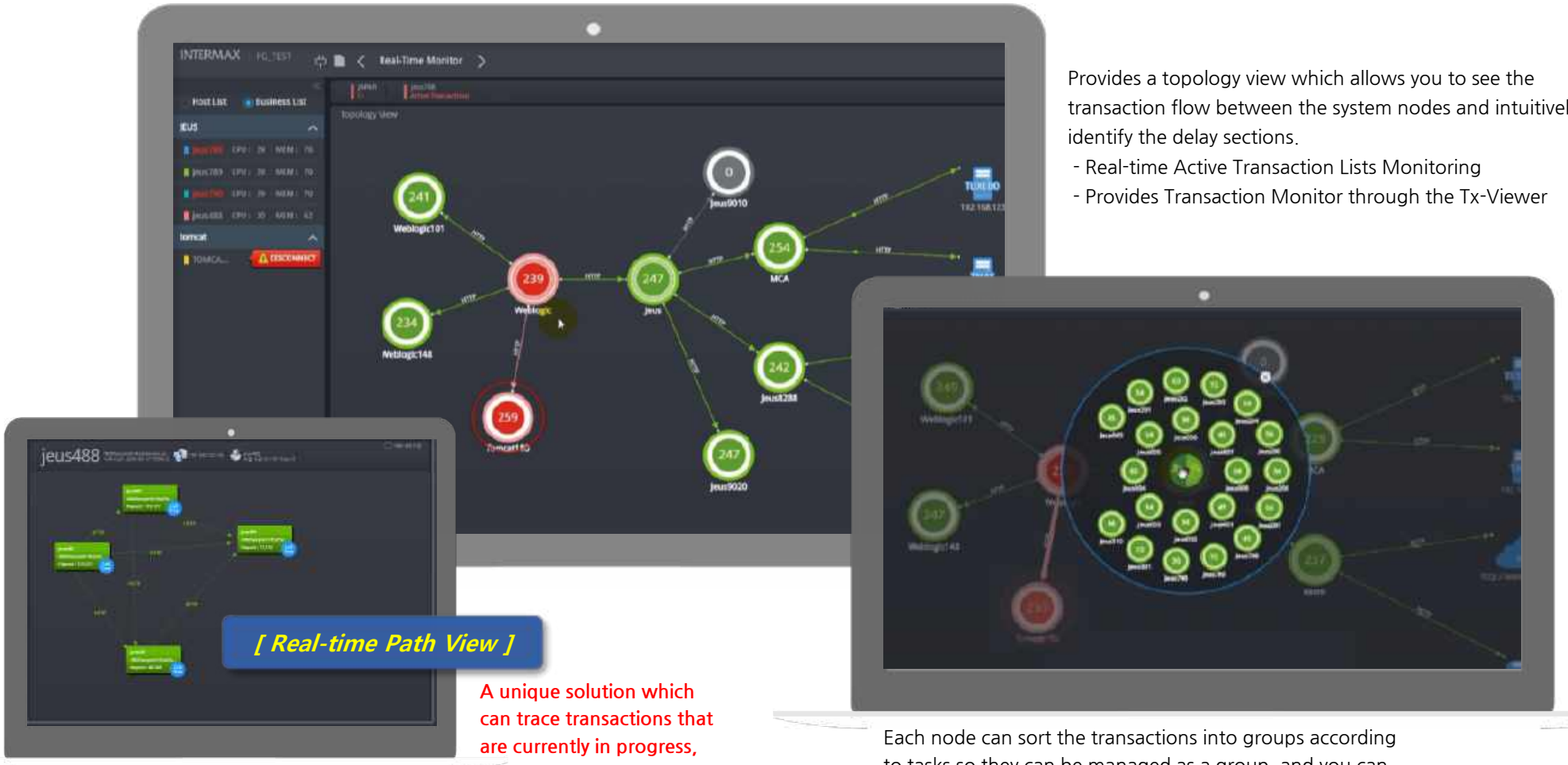
(Feature) Real-time Monitoring – When an error occurs, the root cause of the problem must be clearly indicated.

- When a transaction error or delays occur, it displays each individual transaction's execution structure in a topology format for an easy recognition of the problem area.
- Provides if any error detected in the corresponding section, stack trace info for the error, SQL execution performance data for a detailed analysis of the root cause of the problem.



(Feature) Transaction Trace – Provides a structure map (graph, line, graph and more) of each transaction's flow throughout the entire system. (2/2)

- Provides not only the transaction trace on the analysis screen but the real-time transaction trace as well.
- View the entire connected system through the topology view and **real-time section analysis** is possible through real-time transaction trace.



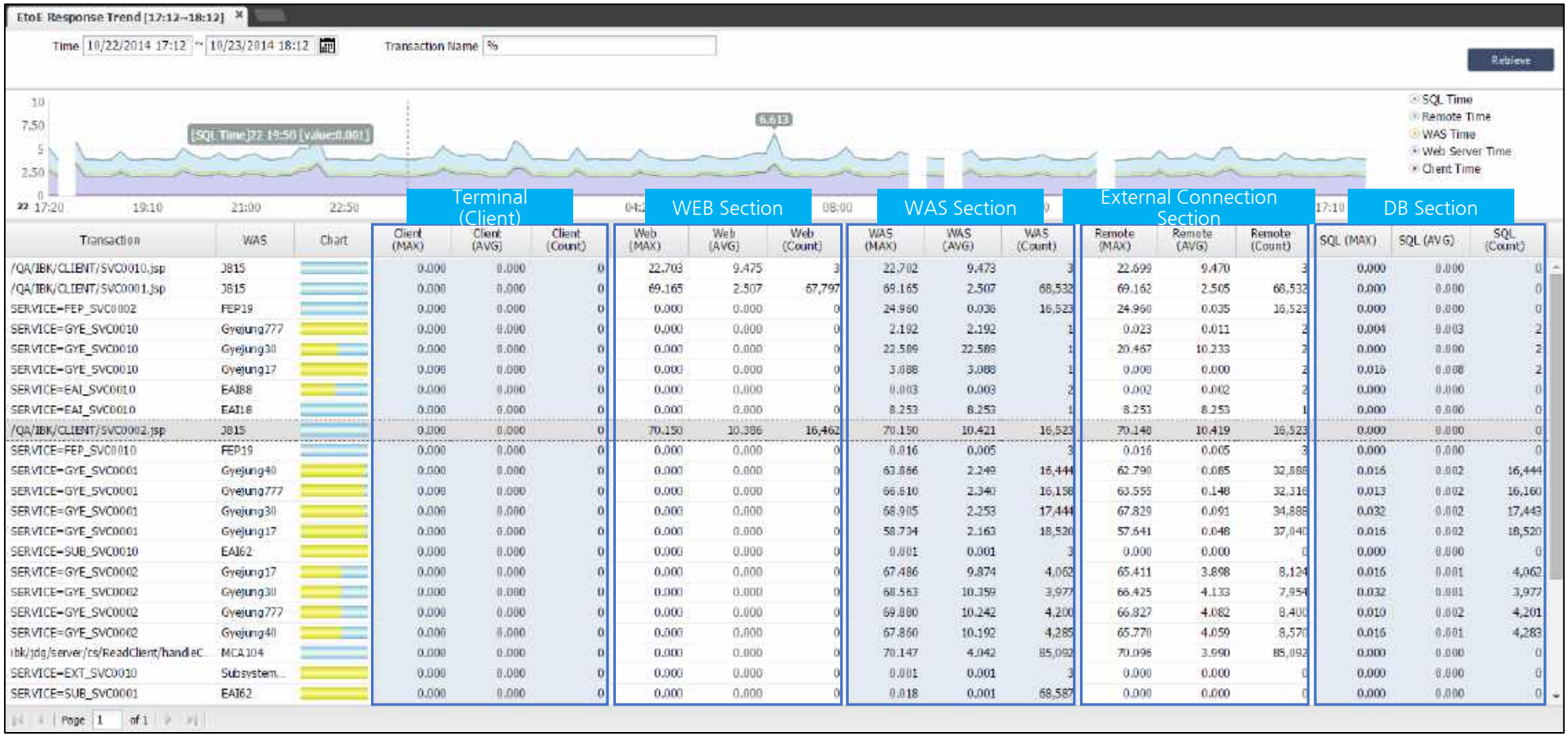
Provides a topology view which allows you to see the transaction flow between the system nodes and intuitively identify the delay sections.
- Real-time Active Transaction Lists Monitoring
- Provides Transaction Monitor through the Tx-Viewer

A unique solution which can trace transactions that are currently in progress, not completed transactions.

Each node can sort the transactions into groups according to tasks so they can be managed as a group, and you can even view by each node in detail for each group.

(Feature) Transaction Trace – Provides the elapsed time for each section. (By each task server, web server, WAS server, TPM server, daemon, DB server, and more)(1/3)

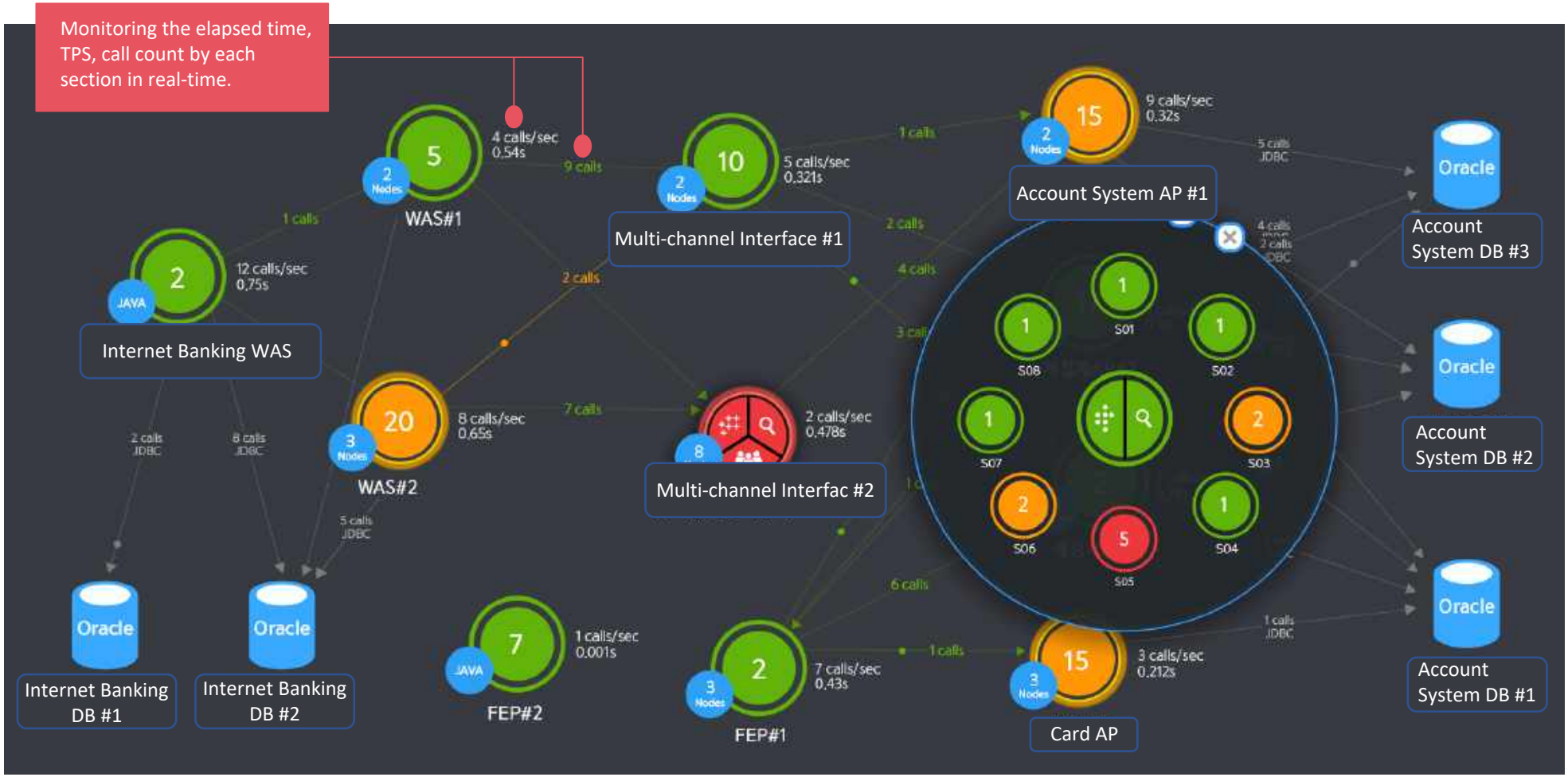
- Check transaction elapsed time by each End-to-End section.
- Based on the transaction name, identify the bottlenecks by measuring the elapsed time in each section from Client–Web Server–WAS–DB or even the external requests.



Middleware Monitoring (End to End) Features Requirement

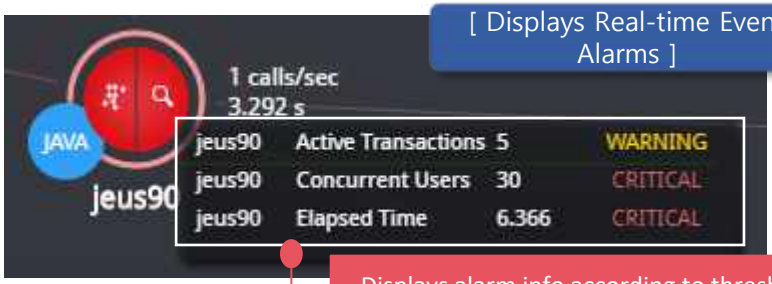
(Feature) Transaction Trace – Provides the elapsed time by each section (By each task server, web server, WAS server, TPM server, Daemon, DB server, and more)(2/3)

- Provides the average elapsed time and the call count through the real-time dashboard screen.



(Feature) Transaction Trace – Provides the elapsed time by each section (By each task server, web server, WAS server, TPM server, Daemon, DB server, and more) (3/3)

- Provides not only the real-time elapsed time by each section but also instant connection for ***Real-time Diagnostic Analysis*** by each individual active transaction.



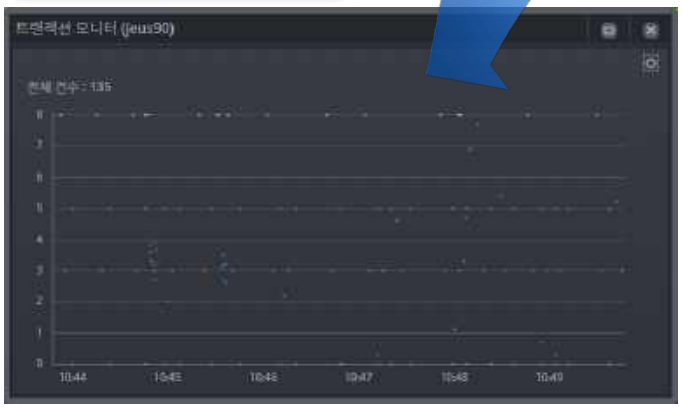
Displays alarm info according to threshold values set for elapsed time, number of concurrent users, active transactions, TPS, and more.

TCP

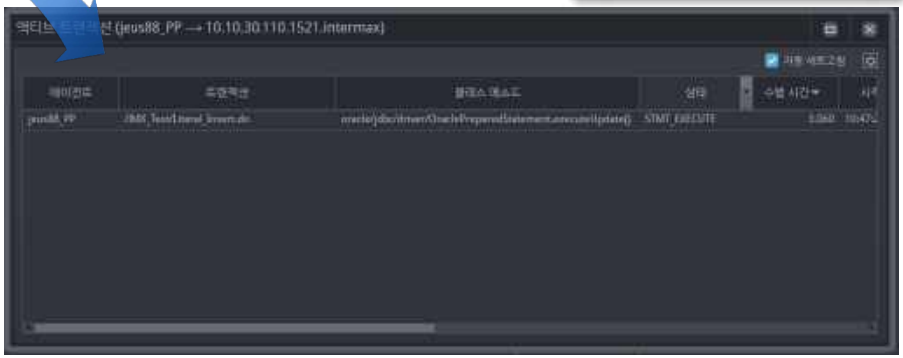
HTTP

JDBC

[Transaction Monitor]



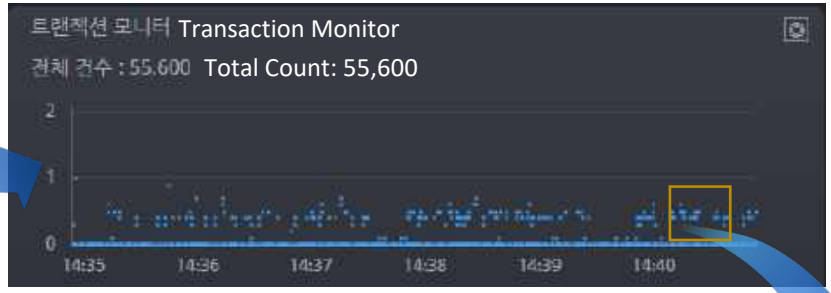
[Active Transacntion]



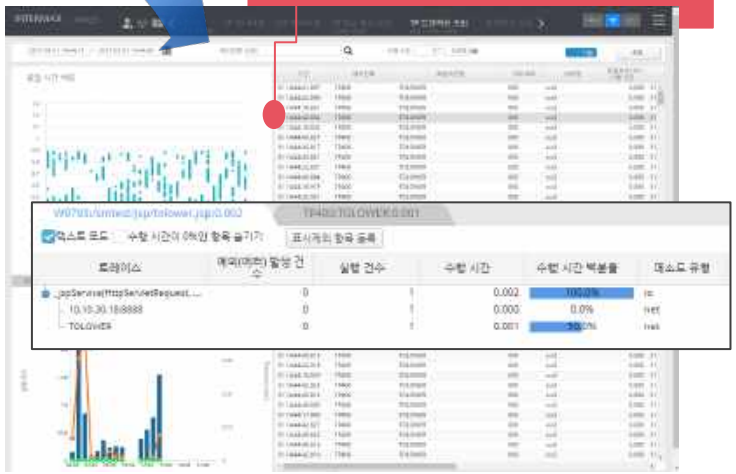
[Node Group Drill Down]

(Feature) Transaction Trace – Main performance stats and real-time monitoring through TP monitoring

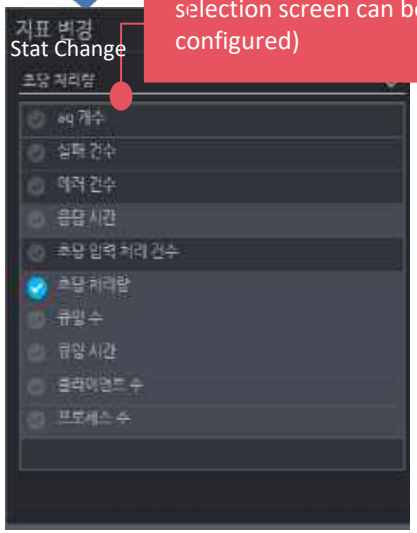
- Provides TP monitoring's real-time main performance stats
- Provides performance stats monitoring equivalent to Tmadmin management commands
- Provides real-time error message monitoring through Slog collection



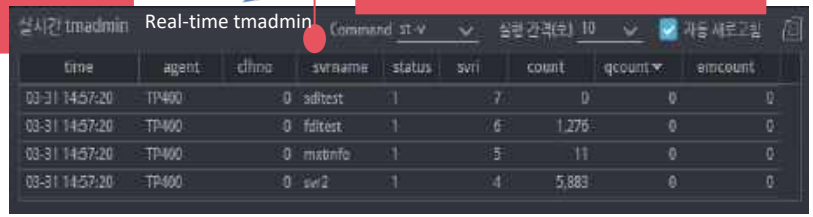
Analyze the call tree of delayed services on the transaction detailed analysis screen by dragging the analysis section.

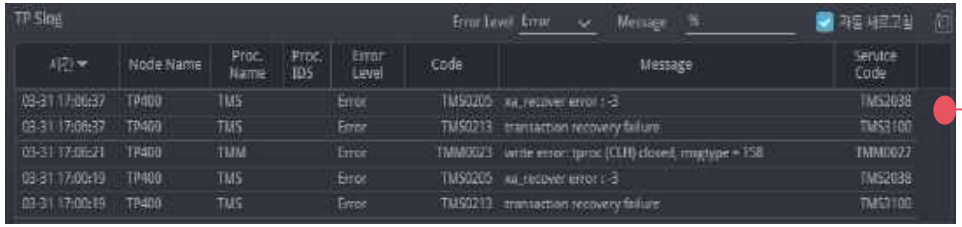


Provides 10 TP main performance stats (Menu selection screen can be configured)



Check Performance stats equivalent to tmadmin manager tool





In the event of a TP slog log generation, monitor with real-time collection.

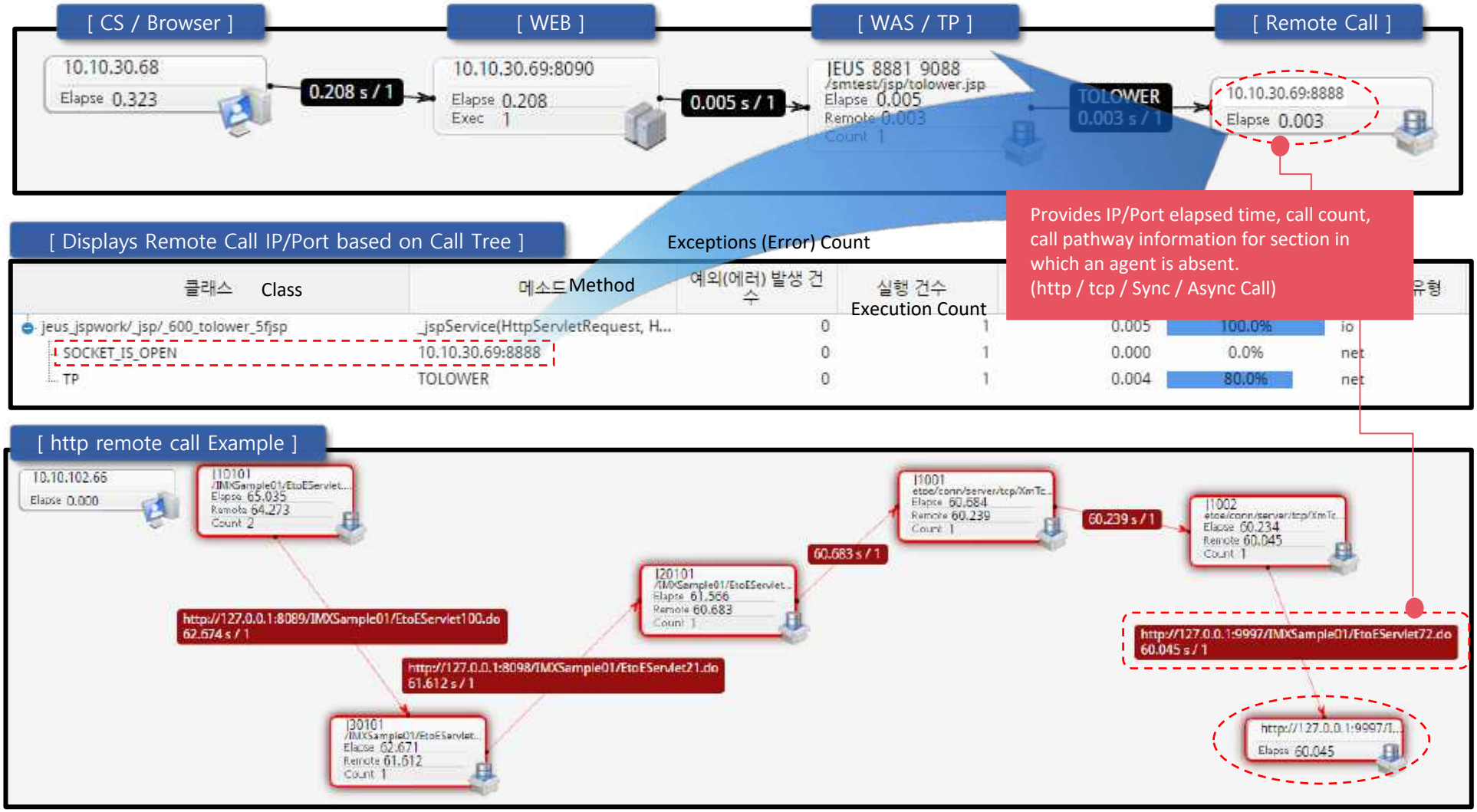
(Feature) Transaction Trace – Transaction process's CPU, Memory, GC and other information are matched up with transaction's information and are displayed simultaneously.

- Execution information of a section in which a specific time point's transaction is being executed can be connected with the corresponding process's resource usage information for analysis.

[Performance Trend Analysis Feature]

(Feature) Transaction Trace – Provides IP, port, elapsed time information of the section in which the monitoring product's agent (collection process) is not installed in the next generation target system.

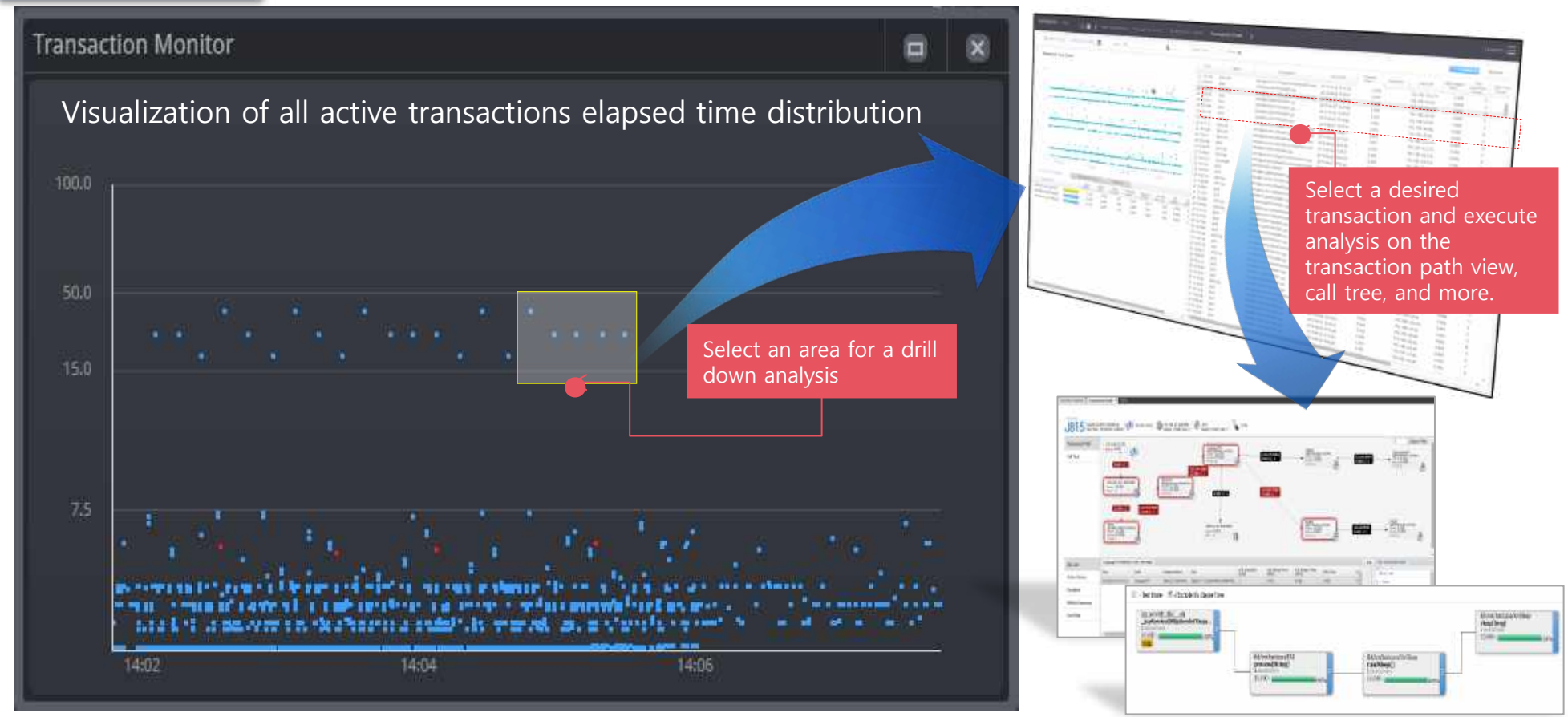
- Provides 'call pathway (call service)', 'IP', 'Port', 'elapsed time' information of remote call section in which an agent is not installed.
- Provides call information details in Call Tree and Path View.



(Feature) Transaction Trace – Represented by dots on Time series dot chart graph and a click/drag on the graph area opens a pop up window which displays the relevant monitoring information (1/3)

- Identify all of individual transaction's elapsed time distribution; exception generated transactions indicated in red.
- Check transaction details profiling information through the distribution chart.

[Transaction Monitor]

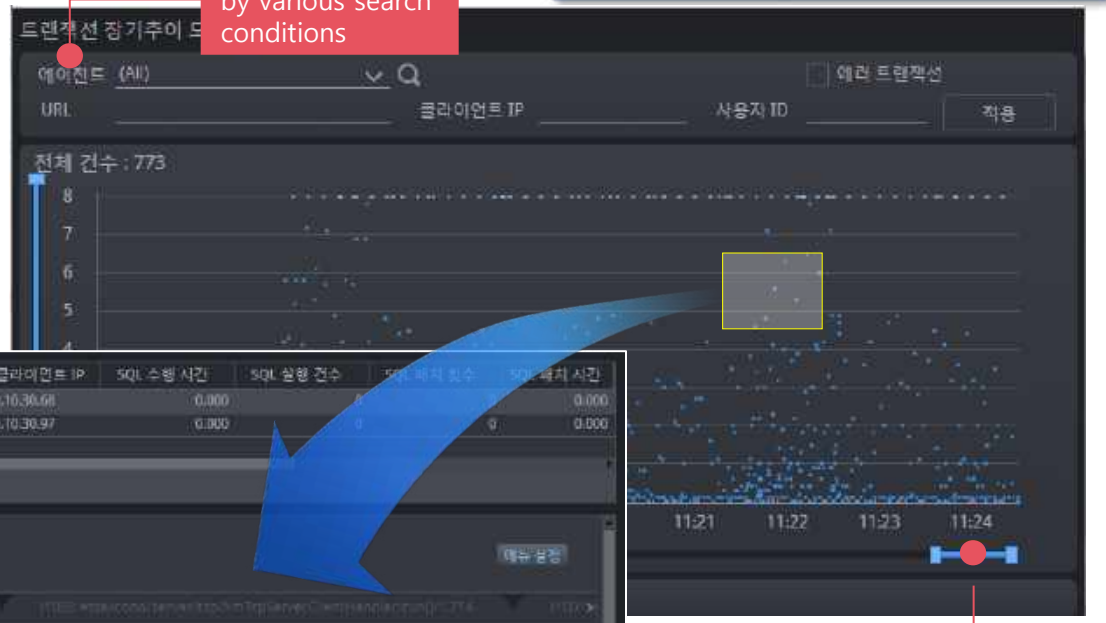


(Feature) Transaction Trace - Represented by dots on Time series dot chart graph and a click/drag on the graph area opens a pop up window which displays the relevant monitoring information (2/3)

- Through the "Transaction long term trend monitor" feature, you can **search the real-time monitoring section details**
- While real-time monitoring, instantaneous provision of transaction details information (call tree, SQL, path view, bind variable, error (exception), user text, and more).

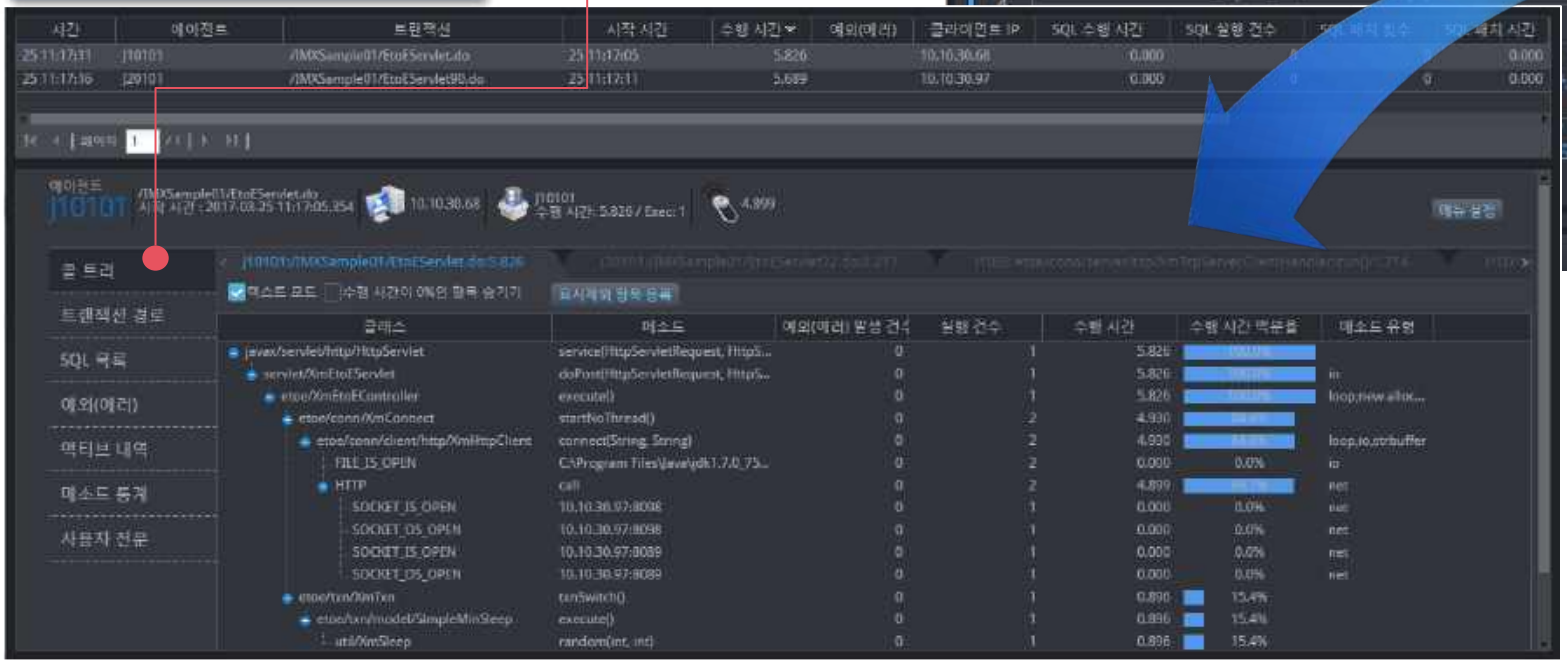
View transactions by various search conditions

[Transaction long term trend monitoring]



Provides call tree, SQL, bind variable, transaction path, exception, user text and other related analytic information.

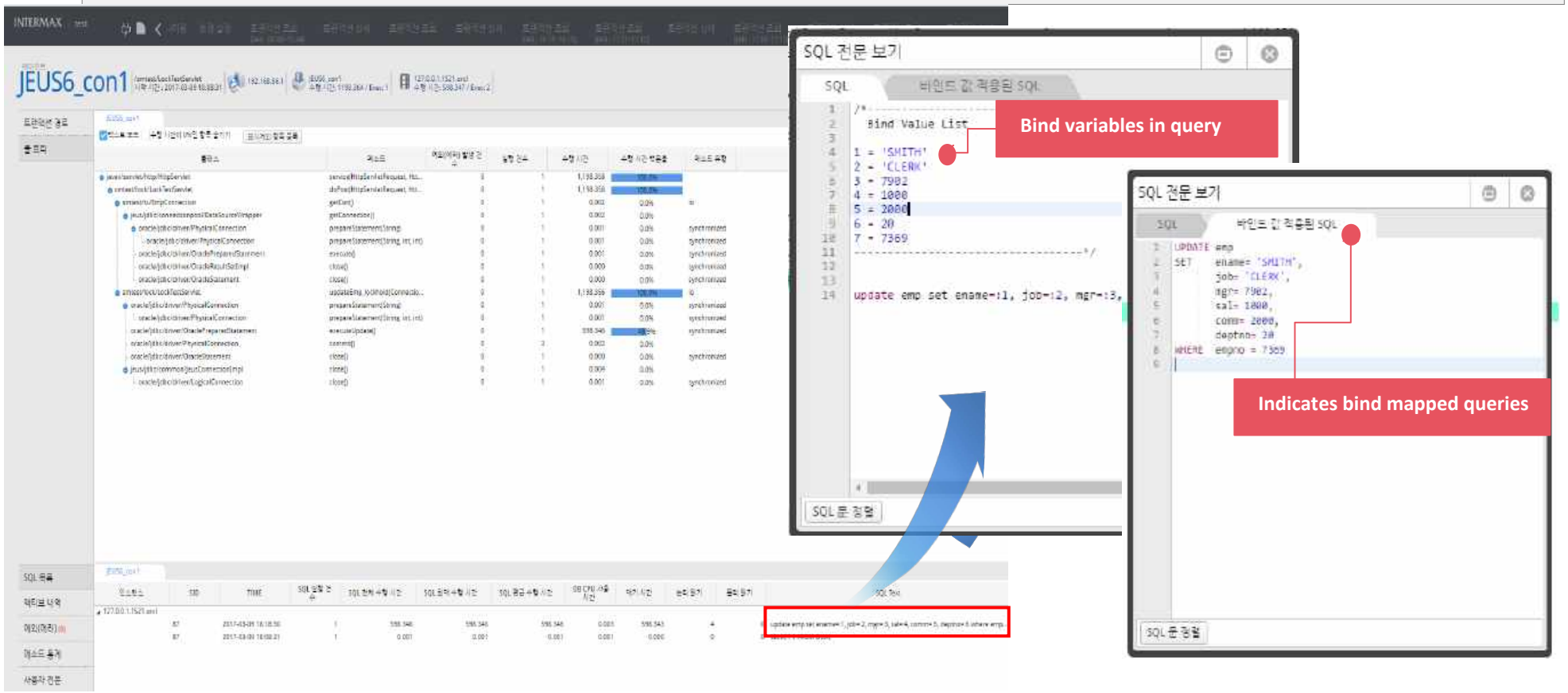
[Real-time transaction detail view]



Drag desired X-Y section for instant viewing

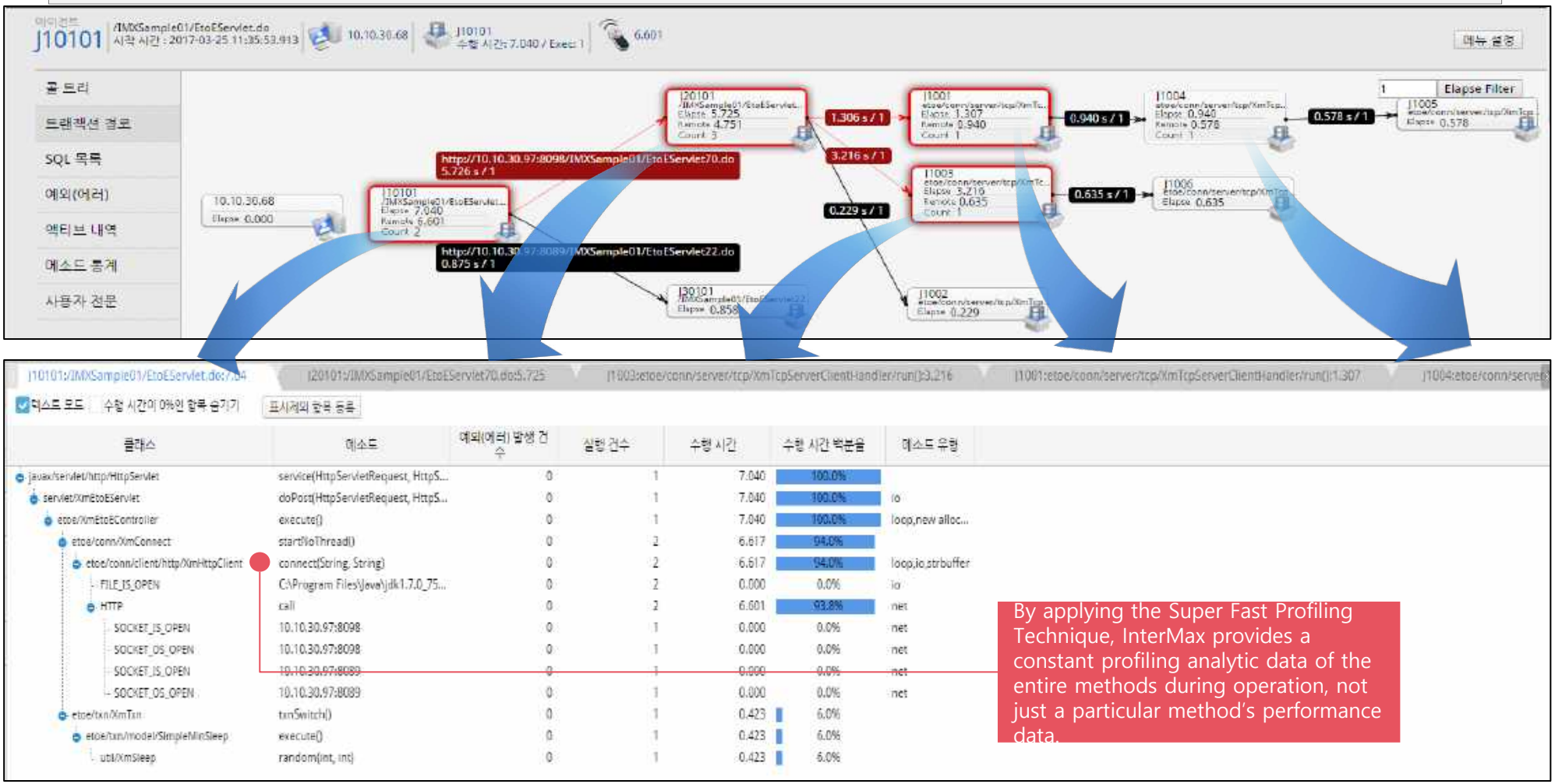
(Feature) Transaction Trace - Represented by dots on Time series dot chart graph and a click/drag on the graph area opens a pop up window which displays the relevant monitoring information (3/3)

- Analyze query monitoring executed in the transaction
- When bind variable is used in the corresponding query, and if it is possible to identify the query before and after binding, then SQL sorting feature is provided.
- In case client's sensitive information is to be included in the collection data, bind SQL encryption and other security features provided.



(Feature) Transaction Trace – View the entire call tree for completed transactions

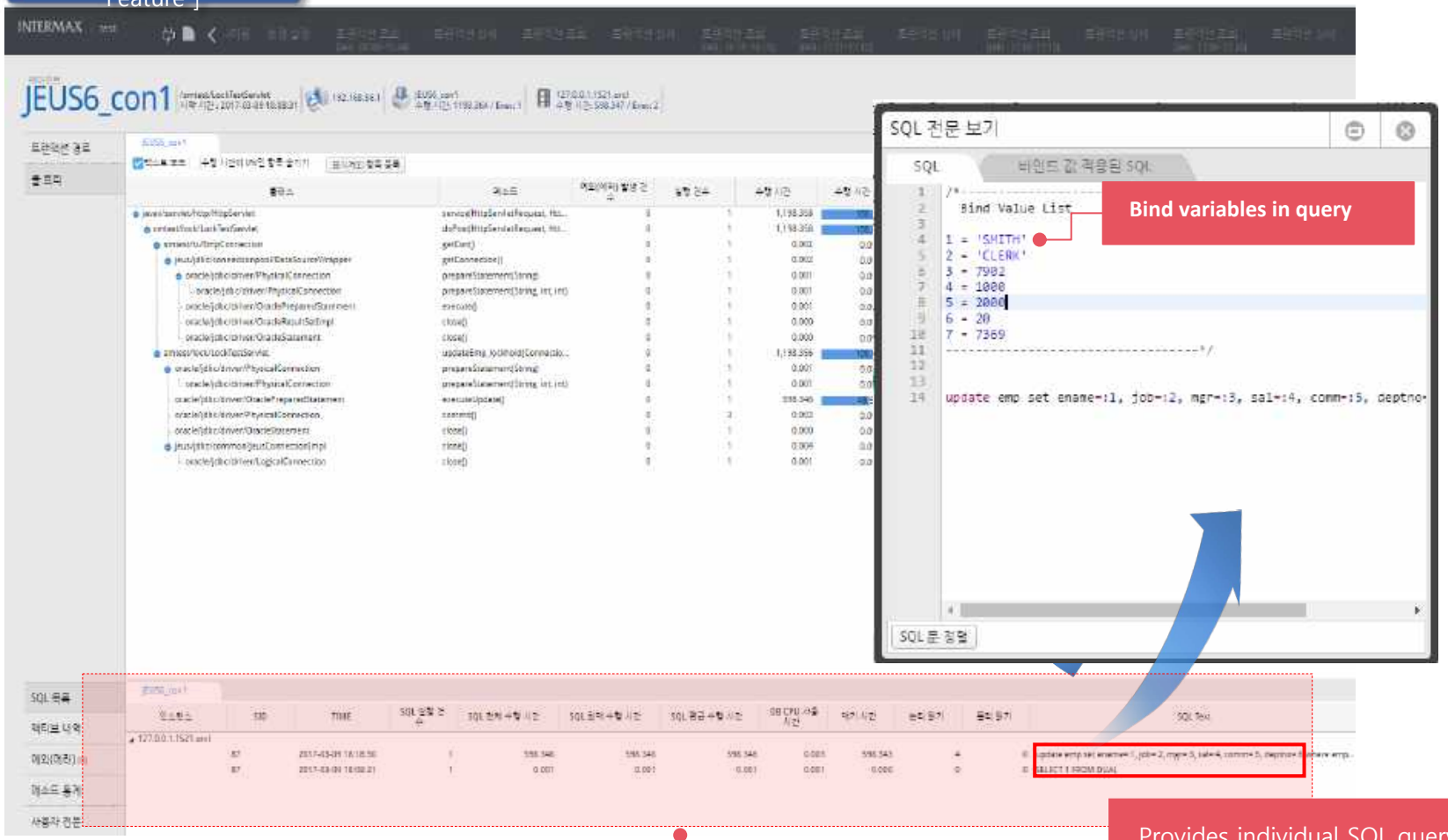
- Displays the transaction movement information for all sections on the transaction path into which the transaction has flown.
- For sections in which the transactions are slow, go to call tree intuitively for performance tuning.
- InterMax ***provides the total call tree information, not just for a particular method, by applying the super fast profiling technique. (Profiling is always provided during operation)***



(Feature) Operation Management – We provide detailed information of SQL executed in the client company's applications. (Items: query, fetch count, SQL parameter, session info, session ID)

- Use the SQL detail viewing feature to check the details of SQLs executed in all transactions.

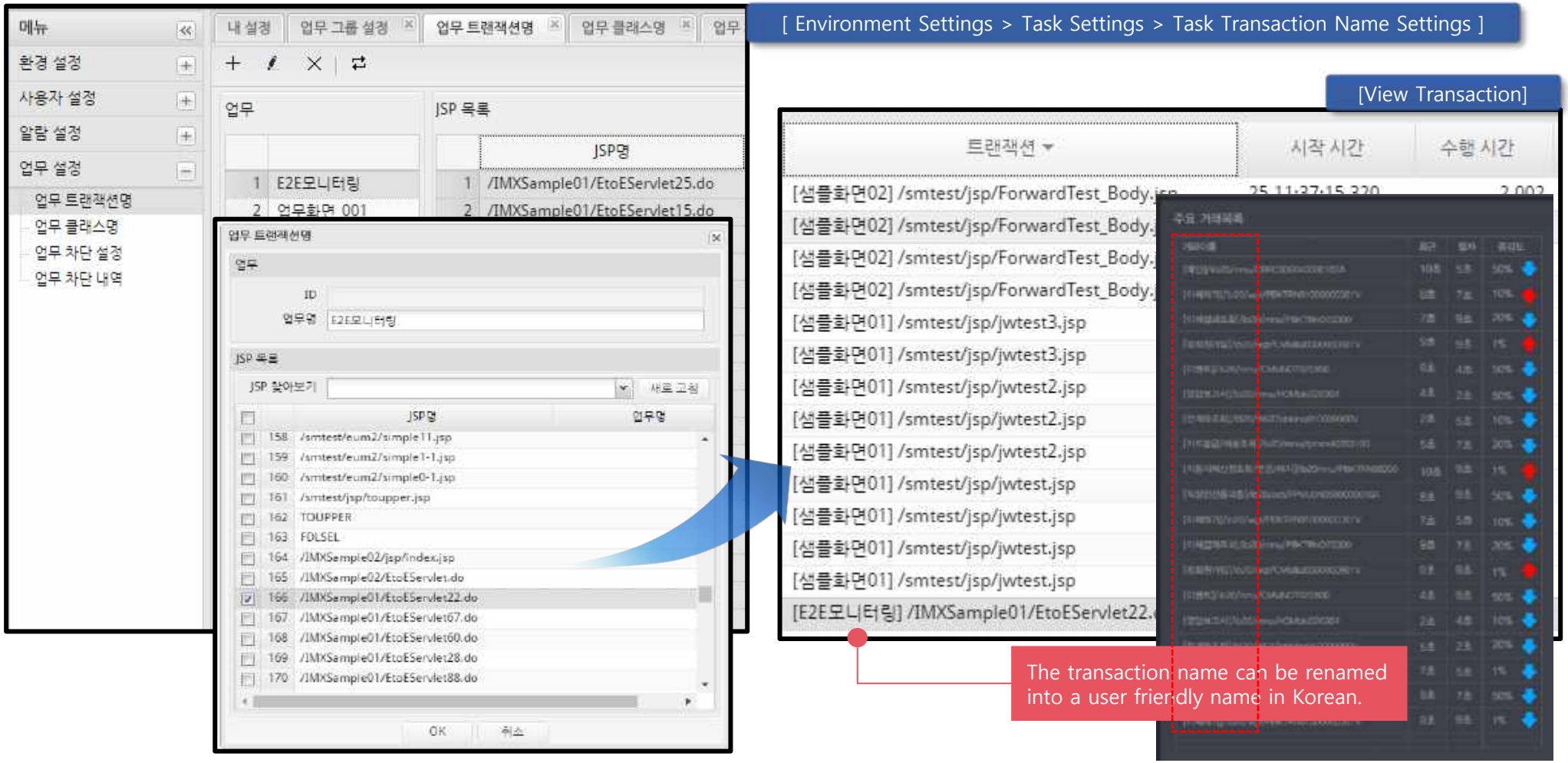
[Transaction Details Feature]



(Feature) Operation Management – Displays in Korean text on dashboard and screen. (Item: Individual transaction name)

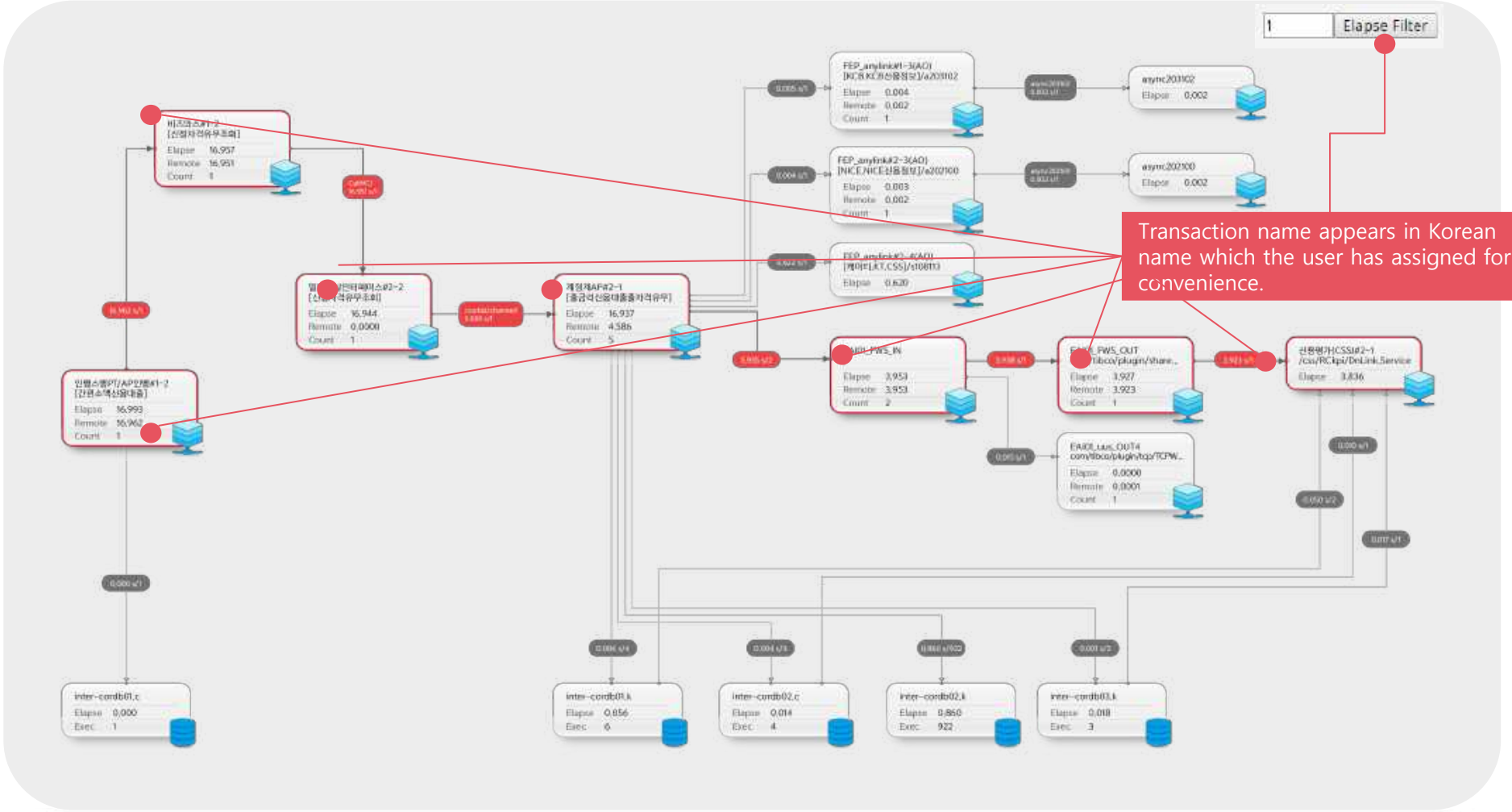
- Task transaction name can be mapped 1:N and named in Korean.
- Renamed transaction is displayed with a user friendly Korean transaction name.
- Korean naming is supported for all other items including task name, agent name, node group name and more.

[Environment Settings > Task Settings > Task Transaction Name Settings]



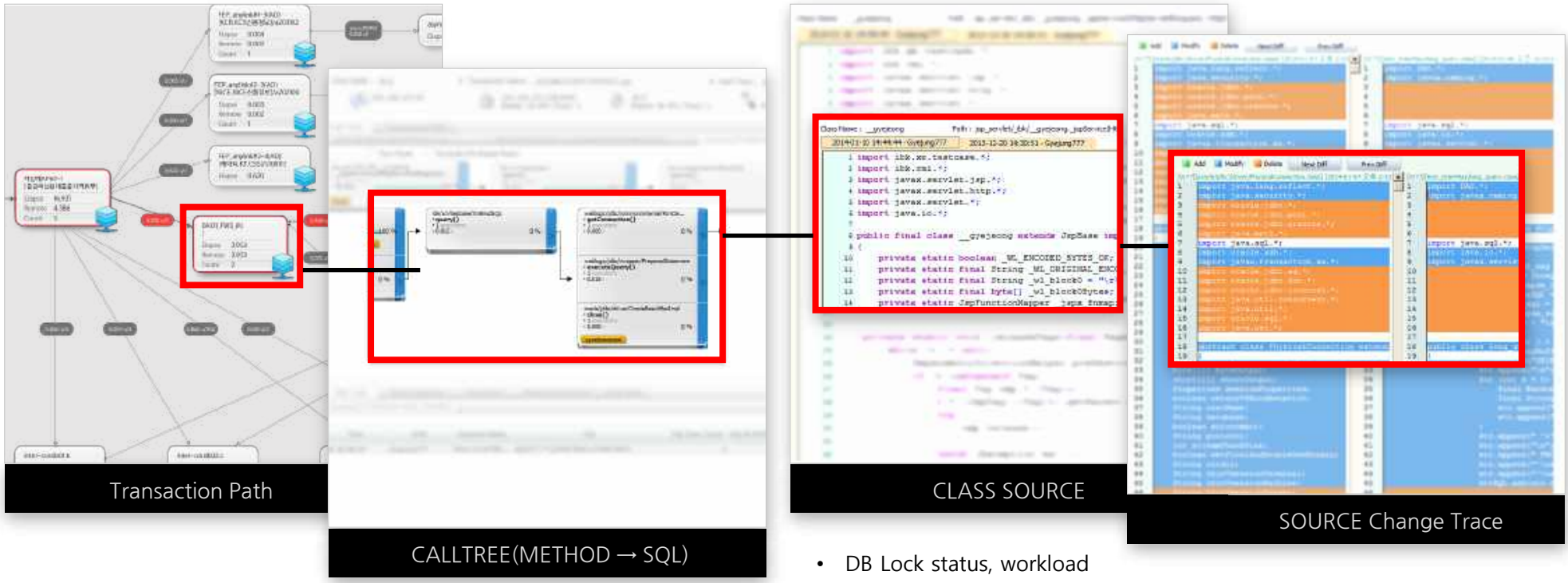
(Feature) Operation Management – Transaction delays and root cause analysis screen are intuitively perceptible and concise performance data is provided. (2/6)

- According to execution time filter feature, you can intuitively identify the delay sections.



(Feature) Operation Management – Transaction delays and root cause analysis screen are intuitively perceptible and concise performance data is provided. (3/6)

- Execute Root Cause Analysis with the least number of clicks.
- Easily analyze the root cause of problem and identify performance issues through intuitive UI.



Provides various features for Trouble Shooting

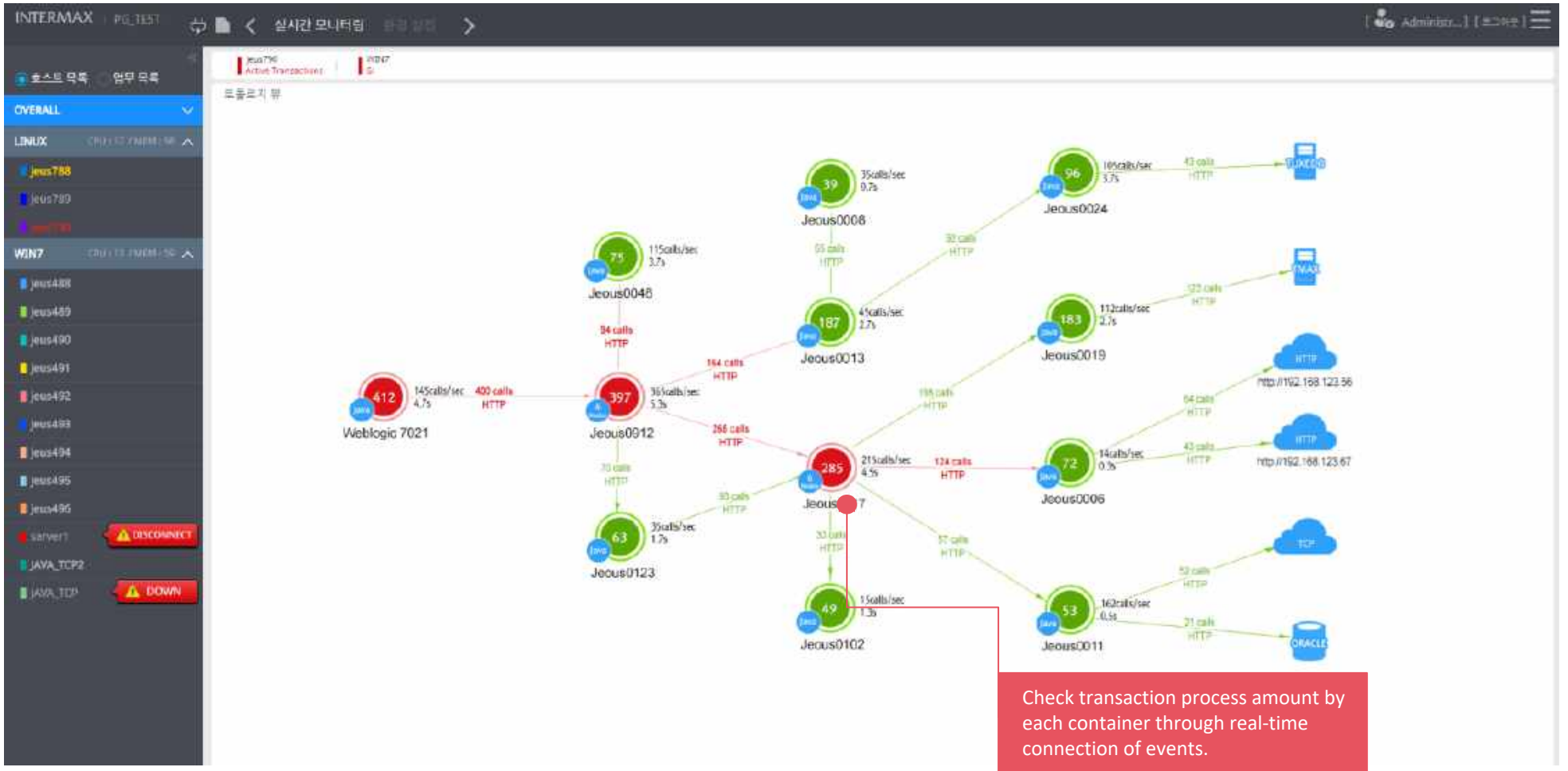
- Call Tree Analysis
- Exceptions

- DB Lock status, workload information
- Source comparison, environment setting files comparison

- Elapsed by section
- GC, memory status
- Class and JSP source view

(Feature) Operation Management – Transaction delays and root cause analysis screen are intuitively perceptible and concise performance data is provided (4/6)

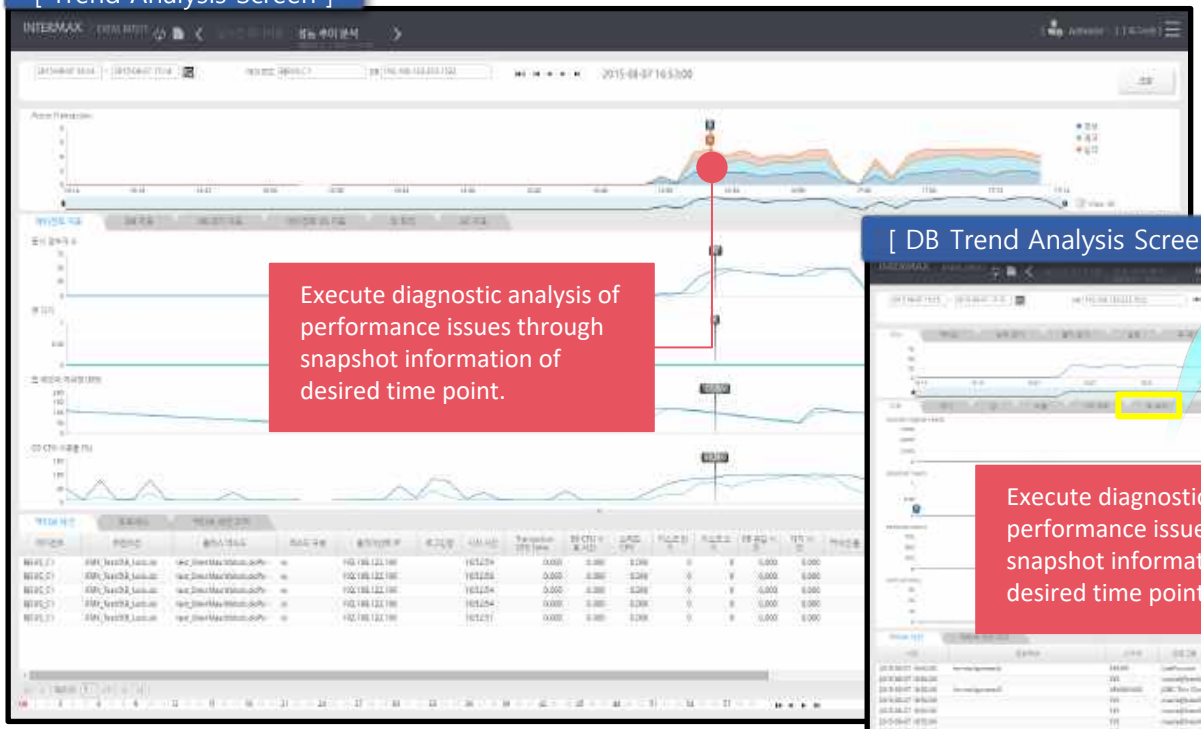
- Identify the work flow and system configuration's transaction flow at a glance through the real-time topology view.
- Monitor the service status through real-time connection of events.



(Feature) Operation Management – Transaction delays and root cause analysis screen are intuitively perceptible and concise performance data is provided (5/6)

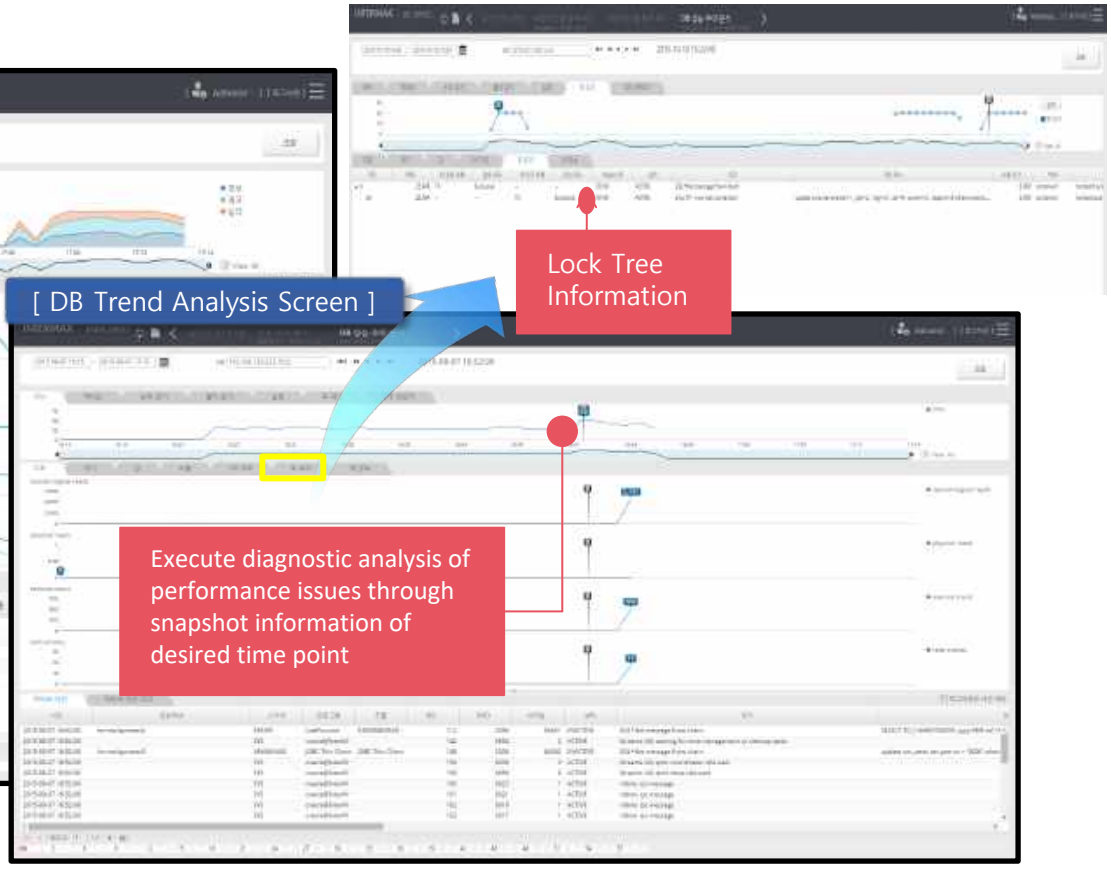
- Transaction related data are provided in chart and snapshot data format so you can analyze a specific time point's execution status.
- Past history is provided in 3 second duration snapshots and can be used to analyze the root cause of issues just as in real-time.

[Trend Analysis Screen]



- Workload information (transaction count, elapsed time, etc)
- JVM / TP / OS / DB Stat
- Resource information
- Process and active session information

[DB Trend Analysis Screen]

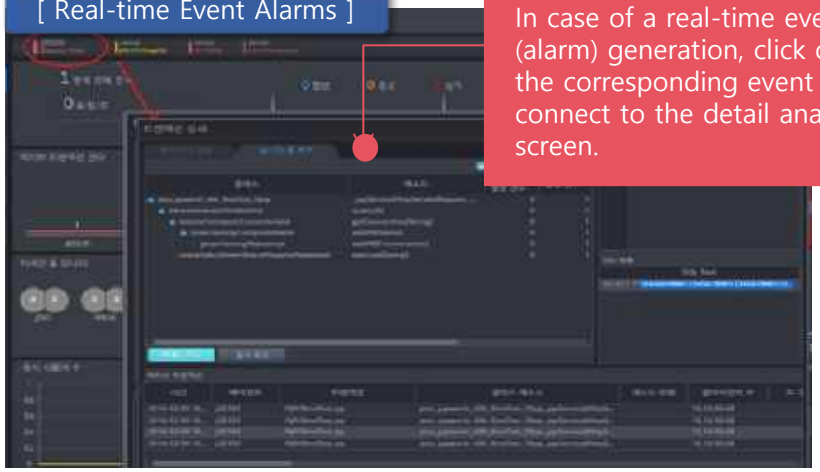


- DB workload information (wait time, logical read, physical read, wait event)
- DB Lock status, workload information
- Active DB session information (Transaction connection)

(Feature) Operation Management – Transaction delays and root cause analysis screen are intuitively perceptible and concise performance data is provided (6/6)

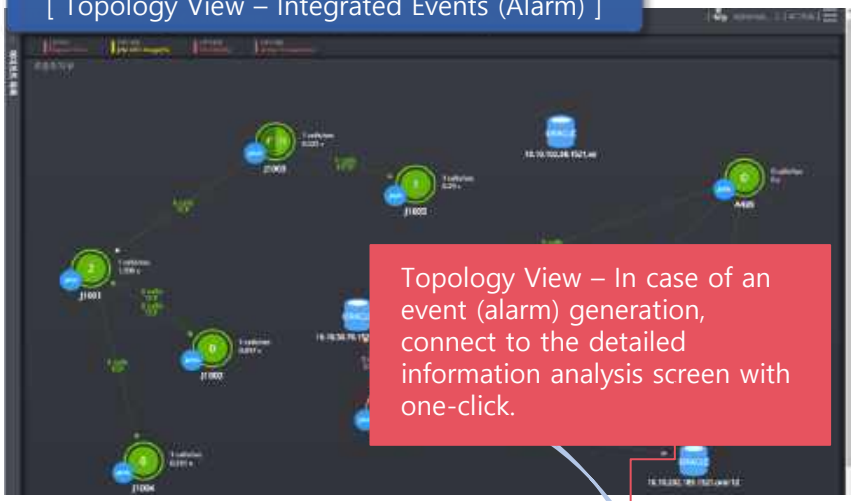
- Provides a feature which allows you to set thresholds for transaction delays and in case of an event generation, to connect with the related details analysis screen.

[Real-time Event Alarms]

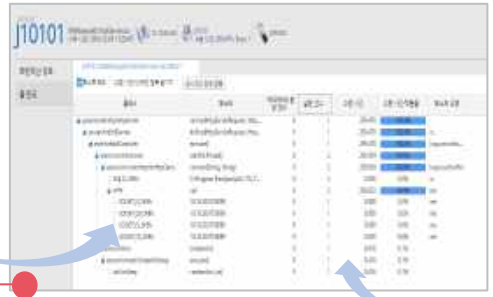


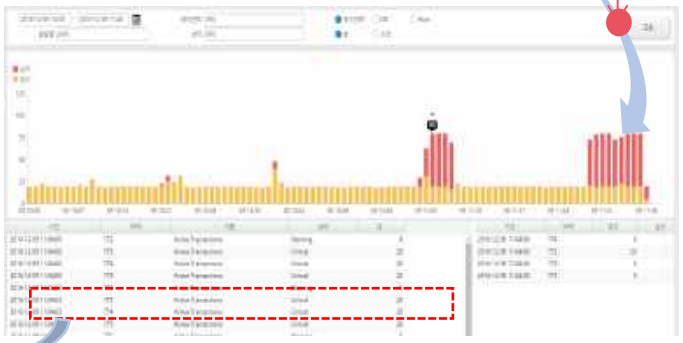
In case of a real-time event (alarm) generation, click on the corresponding event to connect to the detail analysis screen.

[Topology View – Integrated Events (Alarm)]



Topology View – In case of an event (alarm) generation, connect to the detailed information analysis screen with one-click.





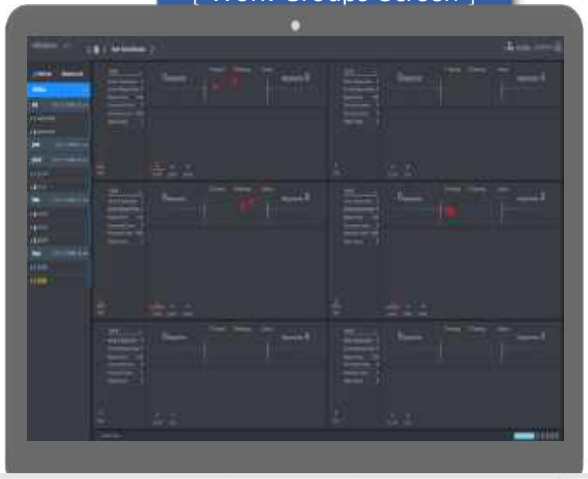
Connect with real-time call tree to analyze the elapsed time event.

(Feature) Operation Management – Provides various types of dashboards to meet the needs of the user and can be customized for user convenience. (1/4)

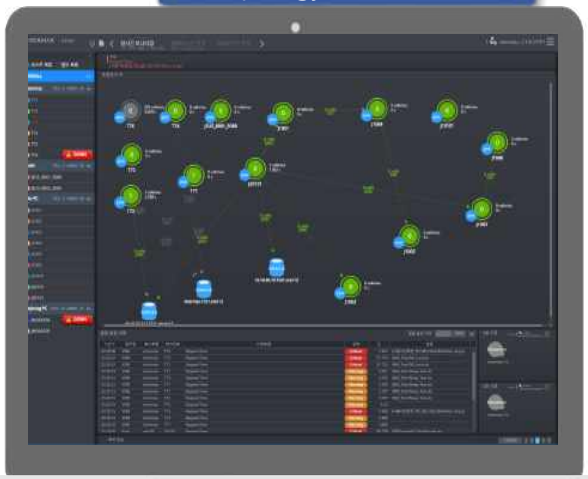
- Provides various types of embedded dashboards
- Provides Home, Work groups, Administrator, WAS-DB integrated monitoring, topology view, and other various perspectives and types of dashboard screens to suit the user's work patterns.

[Home screen]

[Work Groups Screen]

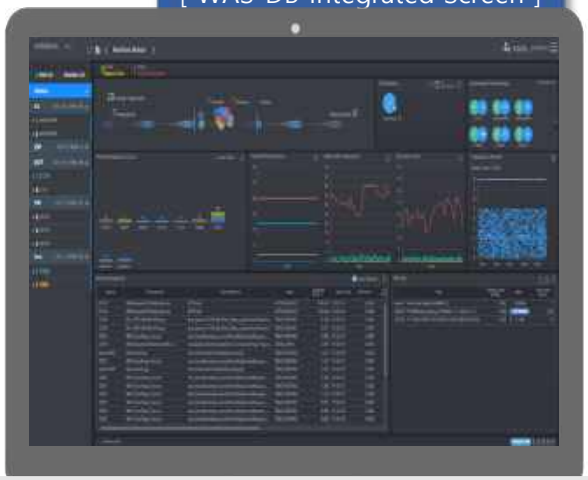


[Topology View Screen]



[Administrator Screen]

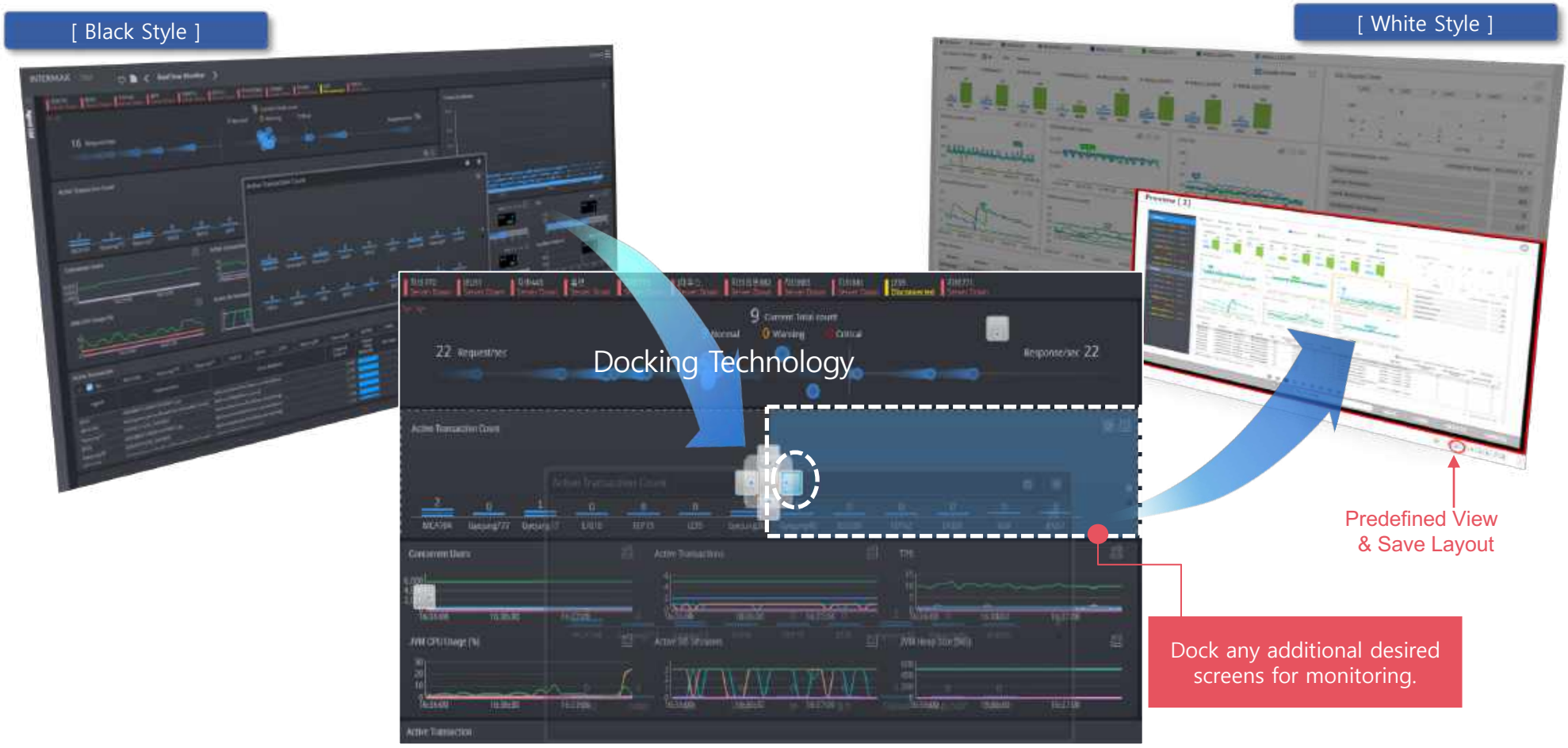
[WAS-DB Integrated Screen]



[WAS Administrator Screen]

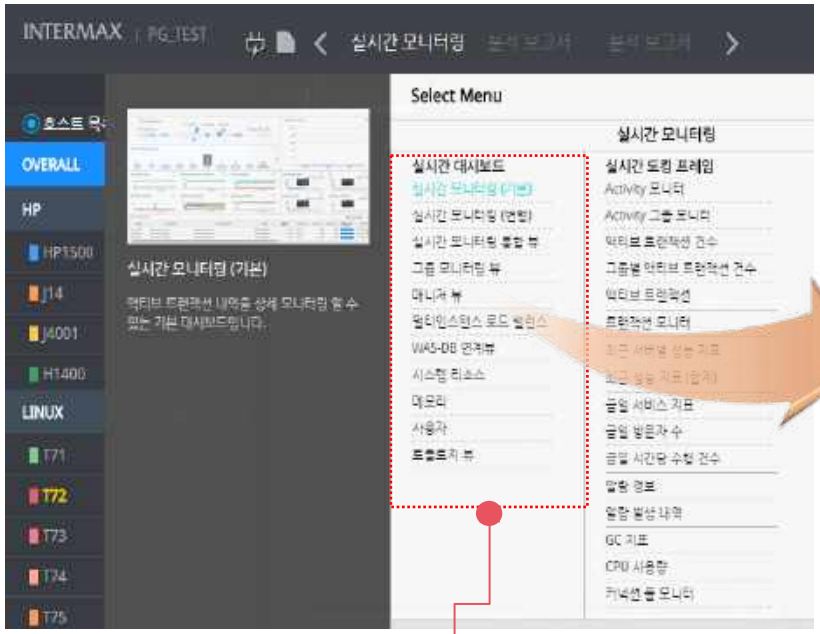
(Feature) Operation Management – Provides various types of dashboards to meet the needs of the user and can be customized for user convenience. (2/4)

- You can freely configure the real-time monitoring screen by using the docking feature to arrange the desired screens.
- Docking configuration of various types of real-time window frames



(Feature) Operation Management – Provides various types of dashboards to meet the needs of the user and can be customized for user convenience (3/4)

- Identify the overall system's problems at a glance through alarms by setting thresholds for the monitoring items.
- Regarding the data collected through APM solutions, customized dashboards can be provided to meet the needs of the client company.



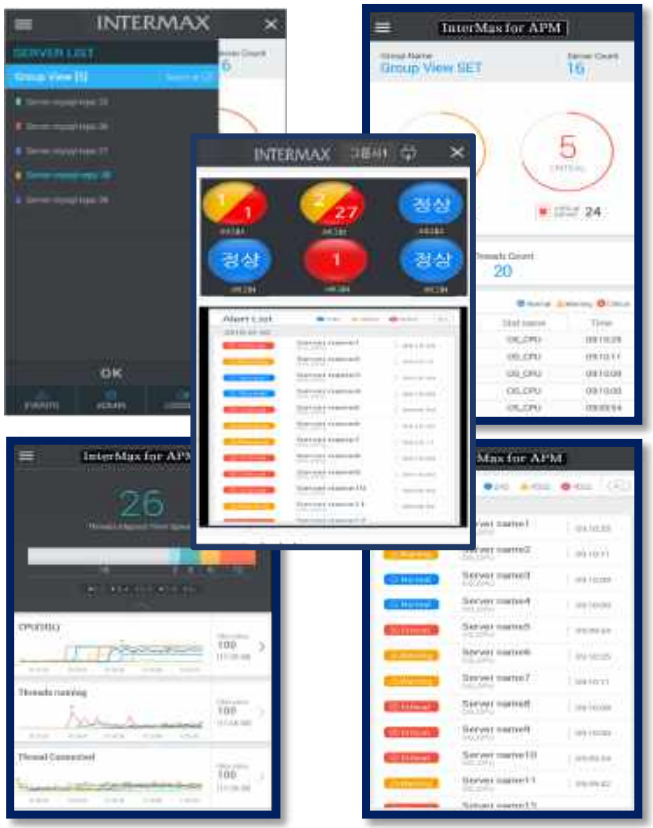
Real-time integrated dashboard is provided separately so that each user can freely choose the performance stat depending on his or her perspective for configuration and monitoring.

(Feature) Operation Management – Provides various types of dashboards to meet the needs of the user and can be customized for user convenience (4/4)

- Besides the default dashboards, you can also use the mobile version dashboards for urgent response to events. (Expected to release in 2017)

[PC version Dashboards] : Provided by default in the solutions.

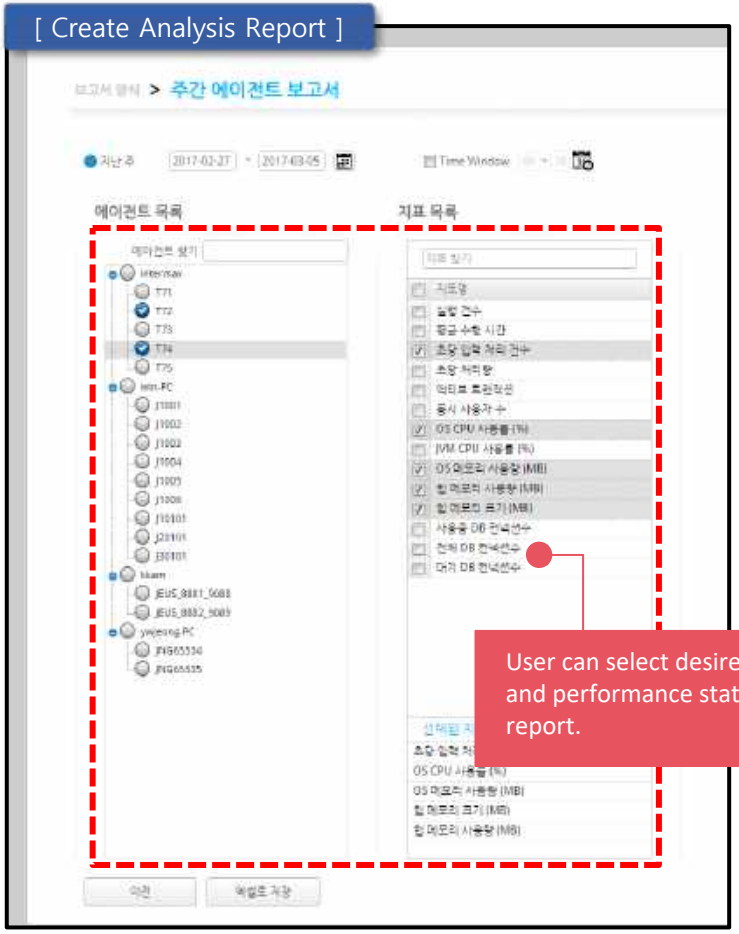
[Mobile version Dashboards] : Mobile dashboards expected to release in 3Q of 2017



(Feature) Operation Management – Provides various types of reports. (By transactions per user request, time, system, etc. reporting feature) (1/2)

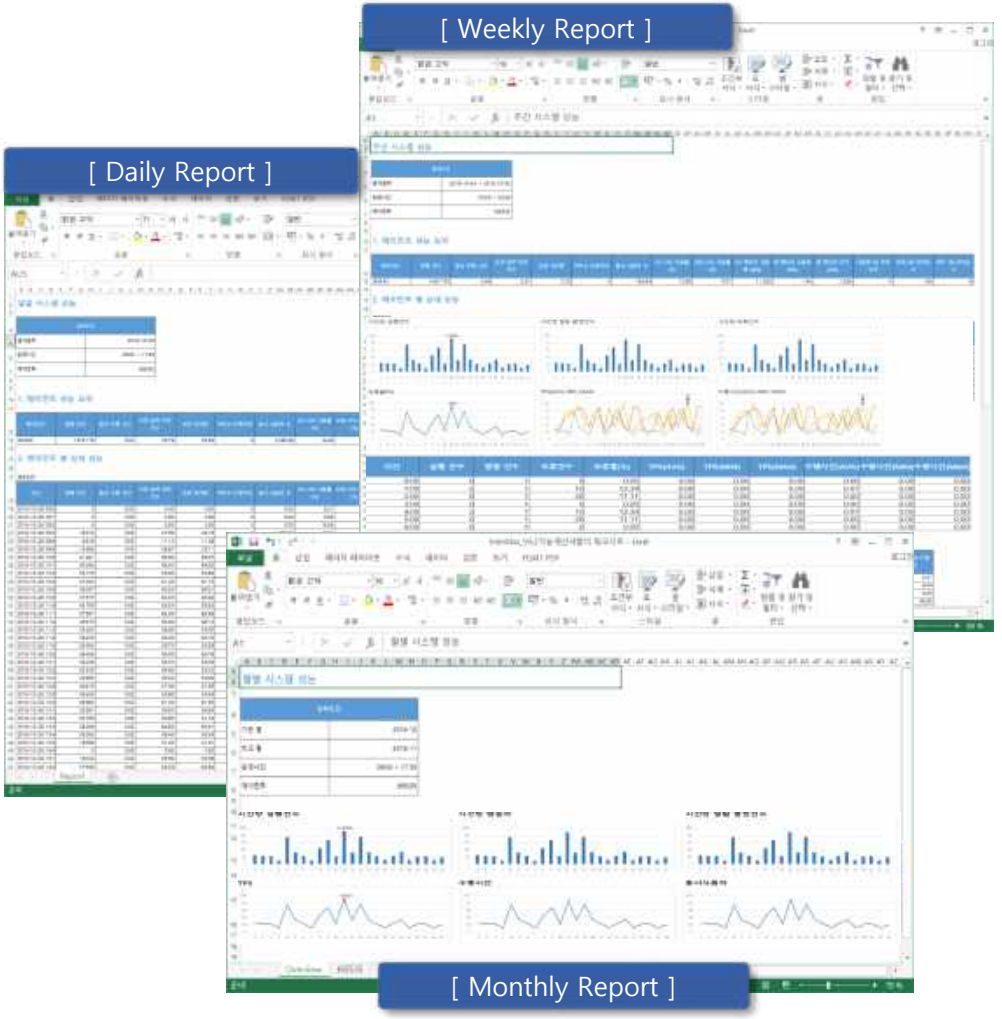
- Individual-based, user-defined dashboard and reports.
- When creating a statistics report, user can select desired target WAS and stats.

[Create Analysis Report]



[Weekly Report]

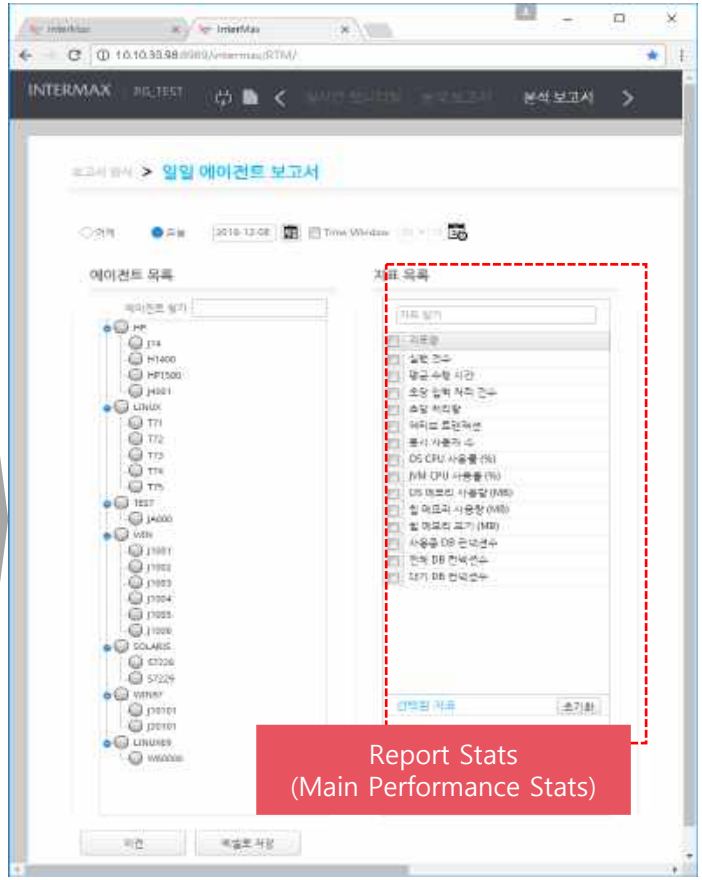
[Daily Report]



[Monthly Report]

(Feature) Operation Management – Provides various types of reports. (By transactions per user request, time, system, etc. reporting feature) (2/2)

- Provides daily/ weekly/ monthly reporting on main performance stats of the entire system.
- Reporting can be customized based on the kinds of statistics data of the client company.

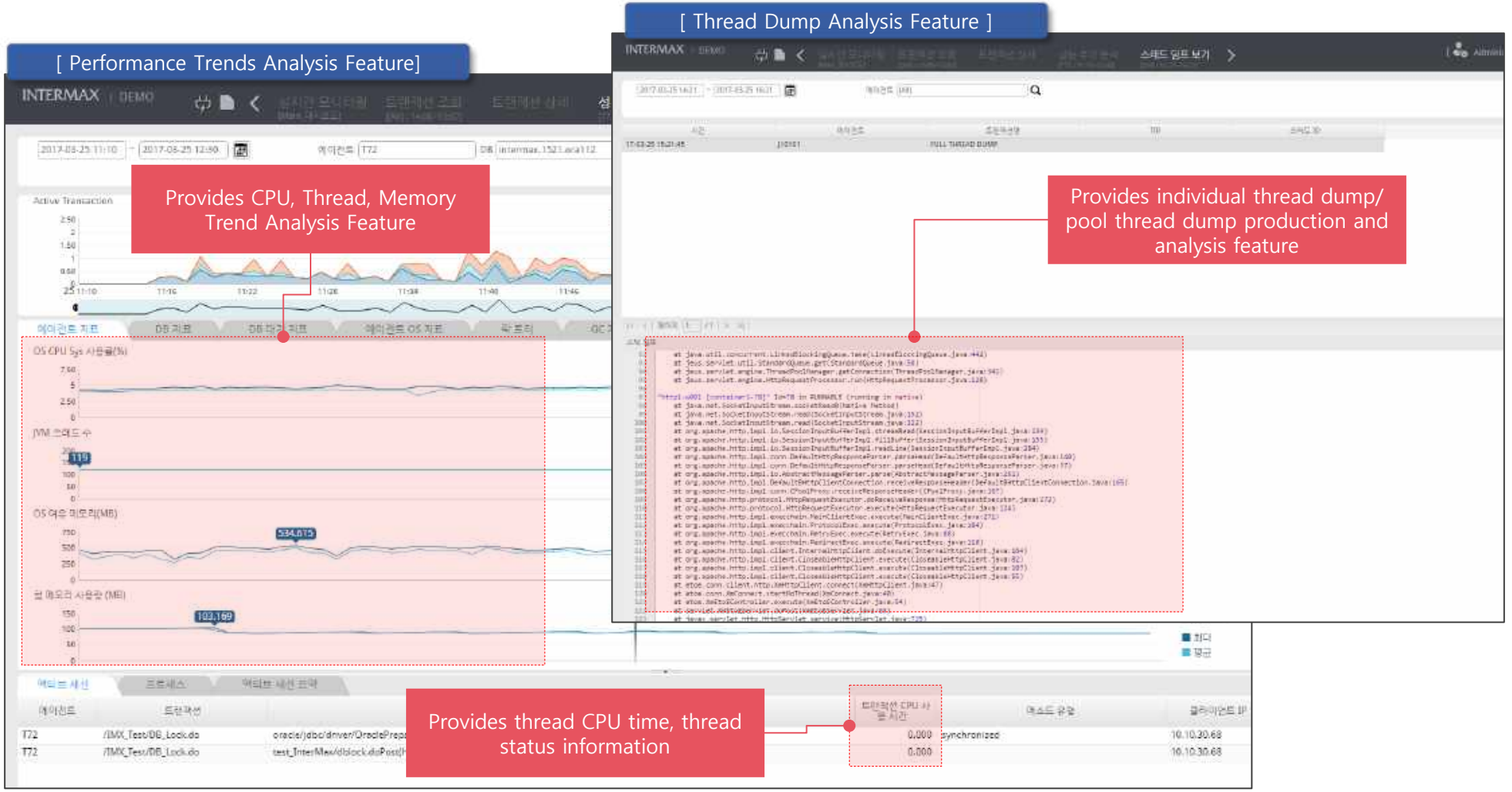


(Feature) Operation Management – CPU, Thread, Memory, Coredump Analysis Features

- Provides OS CPU Analysis, Thread CPU Time, Thread Count, OS Memory/Heap Memory usage trend, Thread Dump analysis features.

[Performance Trends Analysis Feature]

[Thread Dump Analysis Feature]



Thank you for working with

Exem Co., LTD is Korea's leading performance management specialist group.

Thank you