



MAXGAUGE REALTIME MONITOR

Instance Name Business Name

OVERALL

ORA102

JAPAN

CHINA

MAXGAUGE for MySQL on AWS

PRODUCT DOCUMENTATION

- **MAXGAUGE**

- OVERVIEW
- ARCHITECTURE
- FEATURE

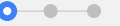
- **FEATURE**

- REAL-TIME MONITOR
- ADMIN
- PERFORMANCE ANALYZER

- **PERFORMANCE ANALYZER**

- EXEM DASHBOARD





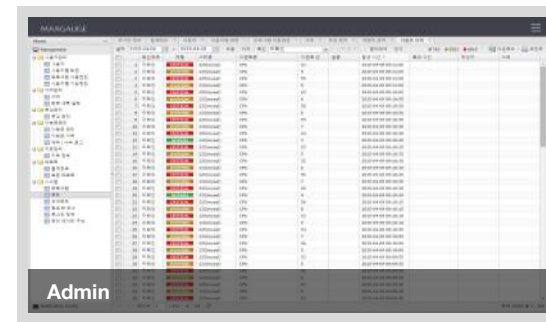
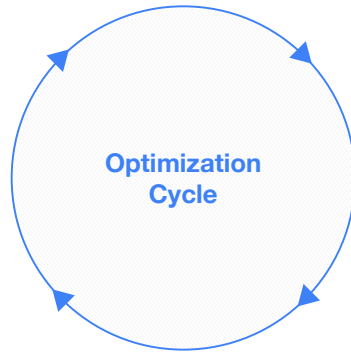
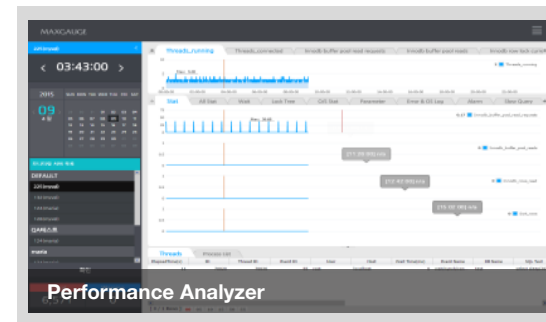
MAXGAUGE for MySQL on AWS

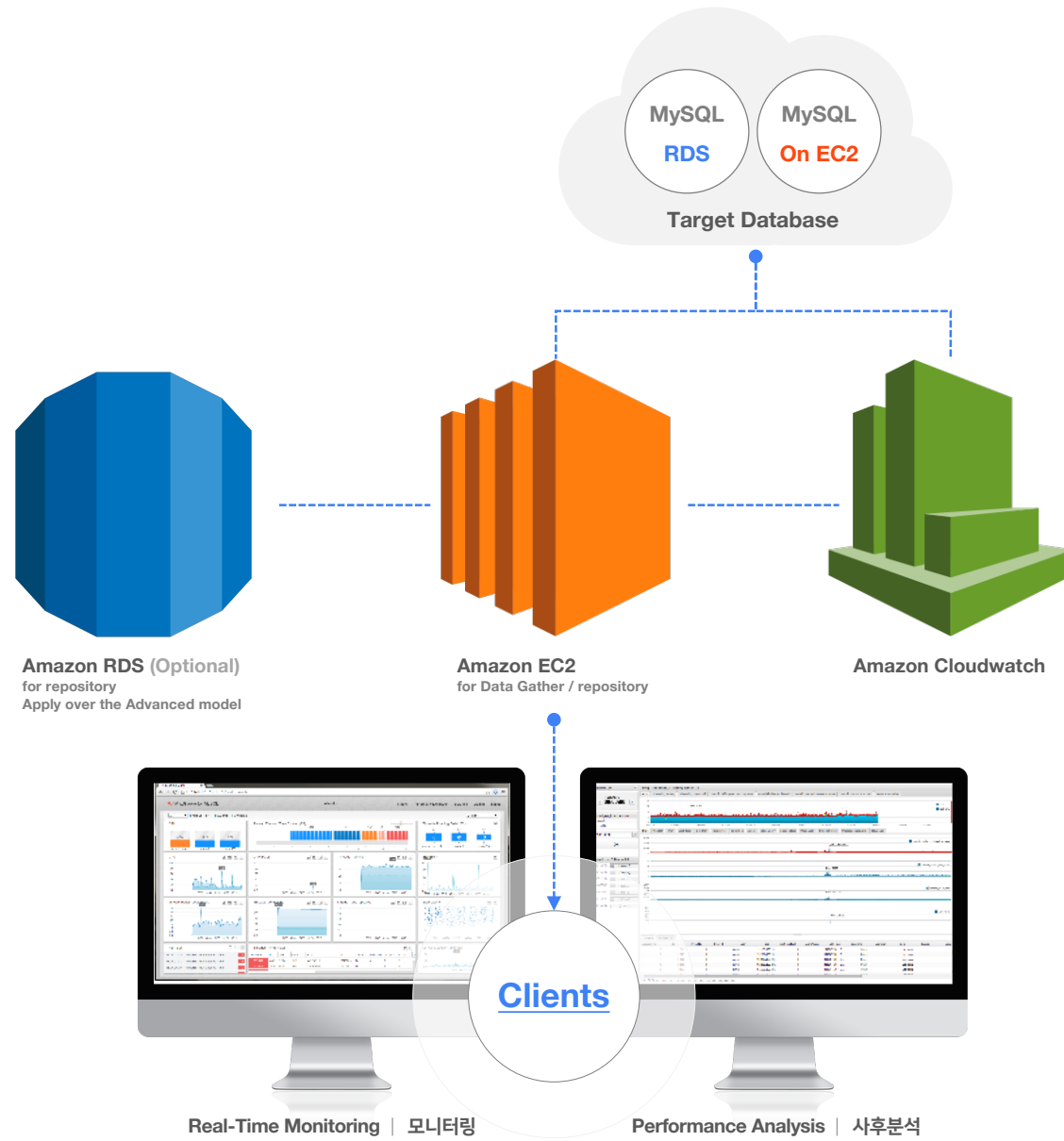
- OVERVIEW
- ARCHITECTURE
- FEATURE



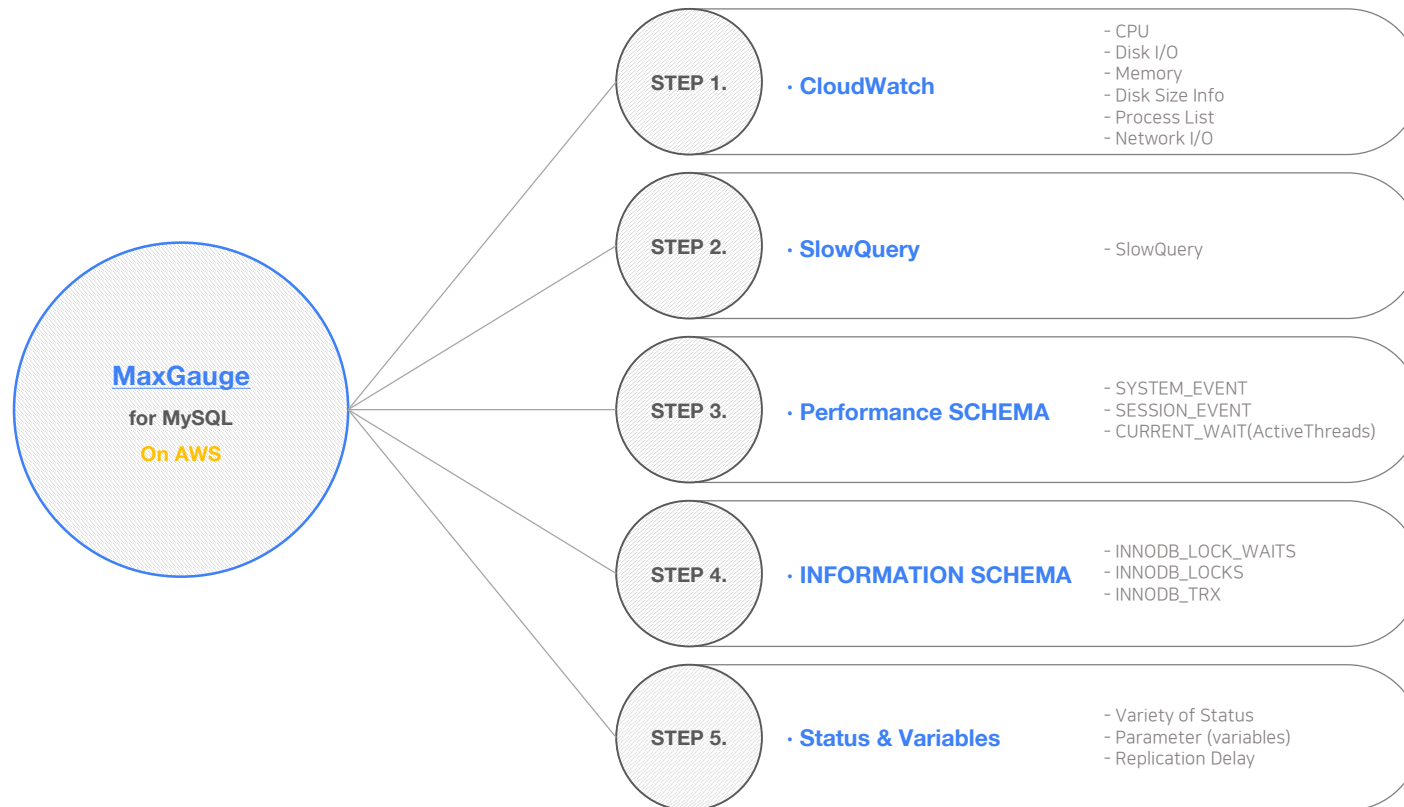
데이터베이스 성능 최적화를 위한 전문 소프트웨어 솔루션

MaxGauge on AWS는 데이터베이스 성능 관리를 위한 전문 소프트웨어 솔루션으로써, 실시간 감시 및 가동정보의 수집, 정밀 진단 및 분석, SQL 튜닝 등 다양한 기능을 제공하여 데이터베이스 시스템의 가용성 및 성능을 효율적으로 관리합니다. Pro-Active한 모니터링 기법을 제공함으로써 문제상황을 빠르게 인지하고, 애플리케이션의 병목 현상을 효과적으로 분석하며, 다양한 성능 데이터를 저장하여 투자대비 효과에 대한 명확한 분석 자료를 제공합니다.





성능 수집 데이터 종류





FEATURE

REAL-TIME MONITOR
ADMIN
PERFORMANCE ANALYZER



직관적이고 쉬운 사용자 인터페이스

서비스 그룹별 View

Multi Node 성능지표 통합 모니터링 영역

실시간 Event 이력

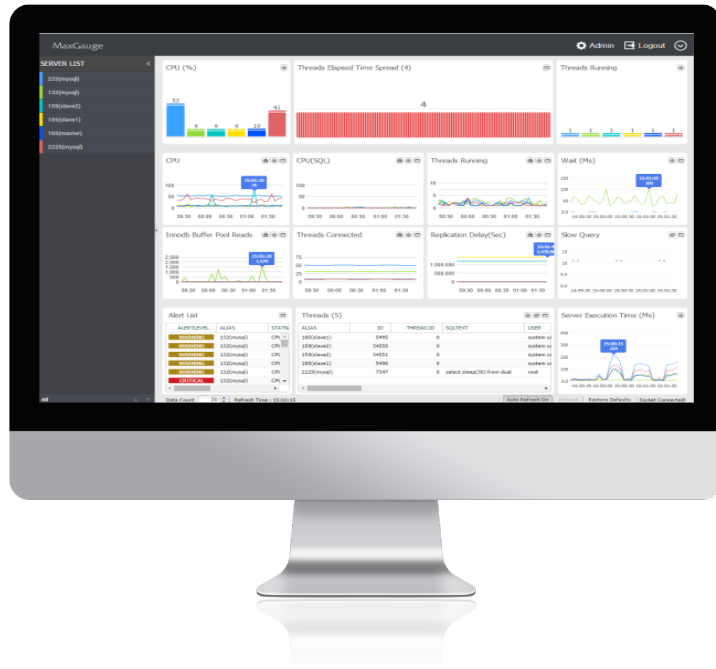
Thread 지표 시각화영역

Wait 모니터링 영역

Replication 모니터링영역

Active Thread 및 수행 Query 정보

간편한 TOP-DOWN 접근방식을 통한 데이터 베이스 모니터링



Threads (22)

ALIAS	ID	THREAD ID	SQLTEXT	USER	HOST	DB	ELAPSE
132(mysql)	226331	226350	delete from lock_test	root	localhost	test	
132(mysql)	226330	226349	select sleep(30) from dual	root	localhost	test	
132(mysql)	226331	226350	delete from lock_test	root	localhost	test	
132(mysql)	226330	226349	select sleep(30) from dual	root	localhost	test	
124(maria)	2940	0	SELECT '2015-03-10 14:48:...	root	192.168.123.12...	exem	

Thread Detail (132(mysql)Session ID: 226409 Thread ID: 226428) - 132(mysql) - Chrome

192.168.123.132:8070/realtime/thread_detail/index.html?&server_no=1&session_id=226409&thread_id=226428&alias=132(mysql)

[ID = 226409] - 132(mysql) (update time : 15:05:02)

OS Stat

- cpu : 5
- user cpu : 1.53
- used memory(%) : 97.17
- used swap(%) : 0.73

Delta Info

Name	Value/Sec	Diff Value	Sigma Val
WAIT/IO/FILE/SQ/QUERY LOG	0	0	0
WAIT/SYNCH/COND/SQ/TC LOG HMAP::COND POOL	0	0	0
WAIT/SYNCH/MUTEX/SQ/LOCK OPEN	0	0	0
WAIT/SYNCH/MUTEX/MYISAMHRG/MYRG INFO::MUTEX	0	0	0
WAIT/SYNCH/MUTEX/SQ/PAGE::LOCK	0	0	0
WAIT/SYNCH/MUTEX/SQ/LOCK TABLE SHARE	0	0	0
WAIT/SYNCH/RV/LOCK/SQ/MDL CONTEXT::LOCK WAITIN...	0	0	0
WAIT/IO/FILE/SQ/INIT	0	0	0
WAIT/SYNCH/MUTEX/SQ/CVERSION LOCK	0	0	0
WAIT/SYNCH/COND/SQ/DELAYED INSERT::COND CLIENT	0	0	0
WAIT/SYNCH/MUTEX/SQ/RELAY LOG INFO::LOG SPACE L...	0	0	0
WAIT/SYNCH/MUTEX/SQ/TC LOG HMAP::LOCK SYNC	0	0	0

SQL Used

```
delete from lock_test
```

Thread Detail Table:

Name	Value
USER	root
HOST	localhost
DB	test
ELAPSED TIME(S)	30
COMMAND	Query
STATE	updating
SQLTEXT	delete from lock_test
EVENT NAME	
SOURCE	
WAIT TIME(S)	
SPINS	
OBJECT NAME	

장시간 쿼리를 수행하는 Thread에 대하여 마우스 더블 클릭으로 Thread Detail 화면으로 연계

Current 대기 이벤트, DB지표와 현재 수행하는 SQL 정보 제공

임계치 설정에 따른 Alarm 내역 확인 기능 제공

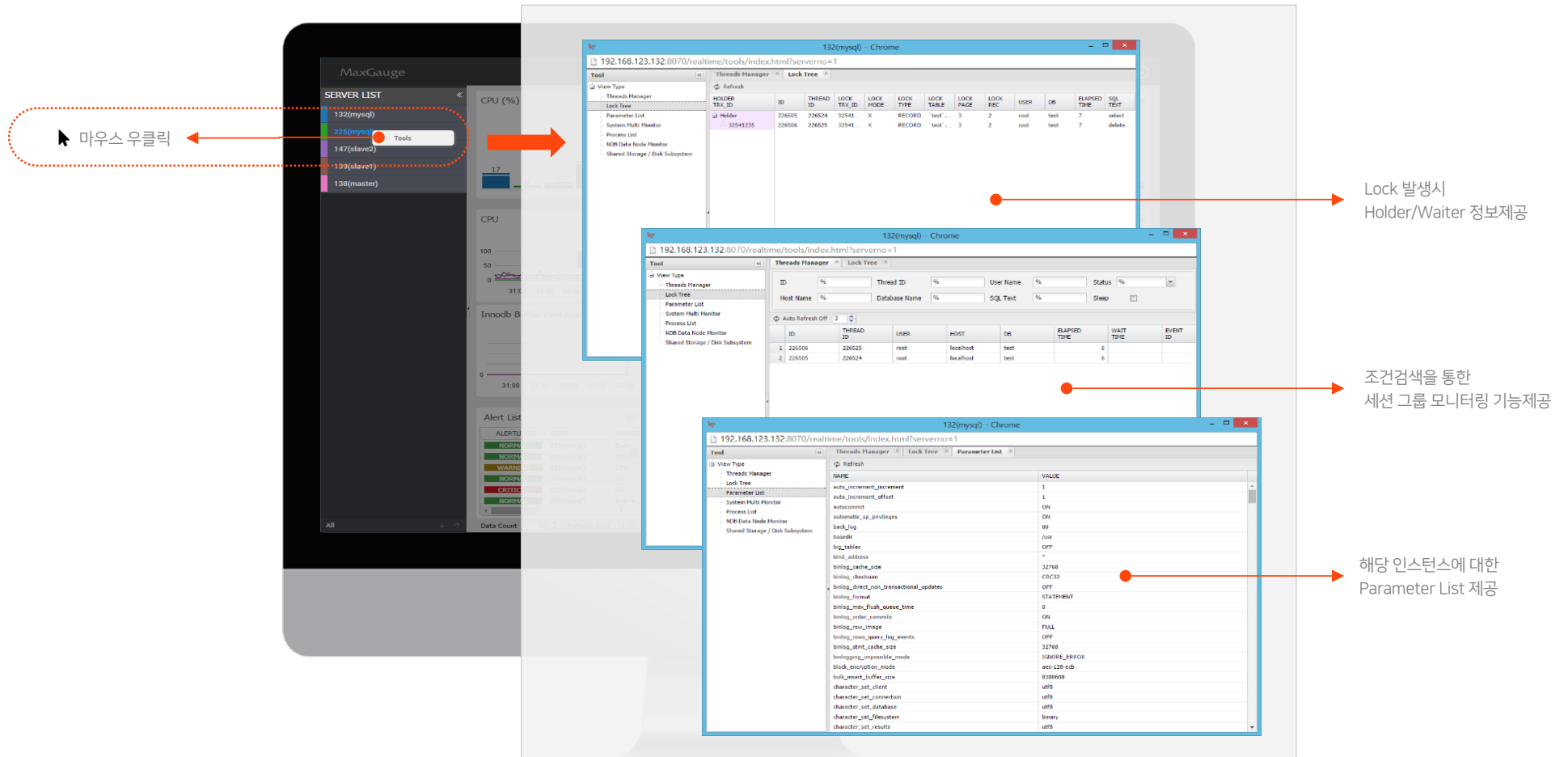
The screenshot displays the MaxGauge monitoring dashboard. The main area shows several performance graphs for CPU utilization, freeable memory, and threads. An 'Alert List' table is visible at the bottom left. A modal window titled 'Event History' is overlaid on the right, showing a detailed table of alerts. An orange arrow points from the 'Alert List' table to the 'Event History' table, and another orange arrow points from the 'Event History' table to the text '관리기능에서알람설정 (Alert Log, Error & OS Log 제공)'.

Date	Check ?	Level	Server ID	Event Name	Event	Descrj	Log Time	Recovery Time	Writer	Reason
2016-07-18	1 NO Check	WARNING	testEC2	Threads...	22		2016-07-18 11:07:50.0			
2016-07-18	2 NO Check	WARNING	testEC2	Threads...	22		2016-07-18 11:07:45.0			
2016-07-18	3 NO Check	WARNING	testEC2	Threads...	22		2016-07-18 11:07:40.0			
2016-07-18	4 NO Check	WARNING	testEC2	Threads...	22		2016-07-18 11:07:35.0			
2016-07-18	5 NO Check	WARNING	testEC2	Threads...	22		2016-07-18 11:07:30.0			
2016-07-18	6 NO Check	WARNING	testEC2	Threads...	22		2016-07-18 11:07:25.0			
2016-07-18	7 NO Check	WARNING	testEC2	Threads...	22		2016-07-18 11:07:20.0			
2016-07-18	8 NO Check	WARNING	testEC2	Threads...	22		2016-07-18 11:07:15.0			
2016-07-18	9 NO Check	WARNING	testEC2	Threads...	22		2016-07-18 11:07:10.0			
2016-07-18	10 NO Check	WARNING	testEC2	Threads...	22		2016-07-18 11:07:05.0			
2016-07-18	11 NO Check	CRITICAL	testEC2	CPUUtiliz...	87		2016-07-18 11:07:00.0			
2016-07-18	12 NO Check	WARNING	testEC2	Threads...	22		2016-07-18 11:07:00.0			
2016-07-18	13 NO Check	WARNING	testEC2	Threads...	22		2016-07-18 11:06:55.0			
2016-07-18	14 NO Check	WARNING	testEC2	Threads...	22		2016-07-18 11:06:50.0			
2016-07-18	15 NO Check	WARNING	testEC2	Threads...	22		2016-07-18 11:06:45.0			
2016-07-18	16 NO Check	WARNING	testEC2	Threads...	22		2016-07-18 11:06:40.0			
2016-07-18	17 NO Check	WARNING	testEC2	Threads...	22		2016-07-18 11:06:35.0			
2016-07-18	18 NO Check	WARNING	testEC2	Threads...	22		2016-07-18 11:06:30.0			
2016-07-18	19 NO Check	WARNING	testEC2	Threads...	22		2016-07-18 11:06:25.0			
2016-07-18	20 NO Check	WARNING	testEC2	Threads...	22		2016-07-18 11:06:20.0			
2016-07-18	21 NO Check	WARNING	testEC2	Threads...	22		2016-07-18 11:06:15.0			
2016-07-18	22 NO Check	WARNING	testEC2	Threads...	22		2016-07-18 11:06:10.0			
2016-07-18	23 NO Check	WARNING	testEC2	Threads...	22		2016-07-18 11:06:05.0			
2016-07-18	24 NO Check	CRITICAL	testEC2	CPUUtiliz...	88		2016-07-18 11:06:00.0			

Alarm Log 히스토리 제공

관리기능에서알람설정
(Alert Log, Error & OS Log 제공)

Tools를 통한 특정 인스턴스의 Lock / Session / Parameter 정보 연계



Admin 기능을 통한 간편한 Maxgauge 관리

MAXGAUGE

Management + Add Save X Delete Test Connect Schema Info Clear Filters Download

(Restart a service when a server data has a change.)

Server ID	Server Alias	Type	IP Address	Port	DB Login ID	DB Password	System Port	System Encoding	SQL Test Length	Description	Instance Name	Gather No	Use ?
1	158(solars)	MYSQL	192.168.122.158	3306	root	*****	9729	esc-kr	FULL LENGTH		instance01	0	Y
2	151(maria)	MARIADB	192.168.122.151	3306	root	*****	9729	esc-kr	FULL LENGTH		instance01	0	N
3	124(maria)	MARIADB	192.168.122.124	3306	root	*****	9729	esc-kr	FULL LENGTH		instance01	0	Y
4	112(mysql)	MYSQL	192.168.122.112	3306	root	*****	9729	esc-kr	FULL LENGTH		instance01	0	Y
5	225(mysql)	MYSQL	192.168.122.225	3306	root	*****	9729	esc-kr	FULL LENGTH		instance01	0	Y

간편한 서버 등록 & Test Connection

MAXGAUGE

Management + Add Save X Delete Copy Permission Clear Filters

User ID	Program	Insert permission	Update permission	Delete permission
1	Admin	Manager - User	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	Administrator	Manager - User	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3	Admin	Manager - User by Server	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	Administrator	Manager - User by Server	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5	Admin	Manager - User View Setting	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6	Administrator	Manager - User View Setting	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7	Admin	Manager - Program Permissions	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
8	Administrator	Manager - Program Permissions	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9	Admin	Manager - Control Permissions	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
10	Administrator	Manager - Control Permissions	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11	Admin	Server(s) - Server	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

사용자 계정 추가 및 권한 부여

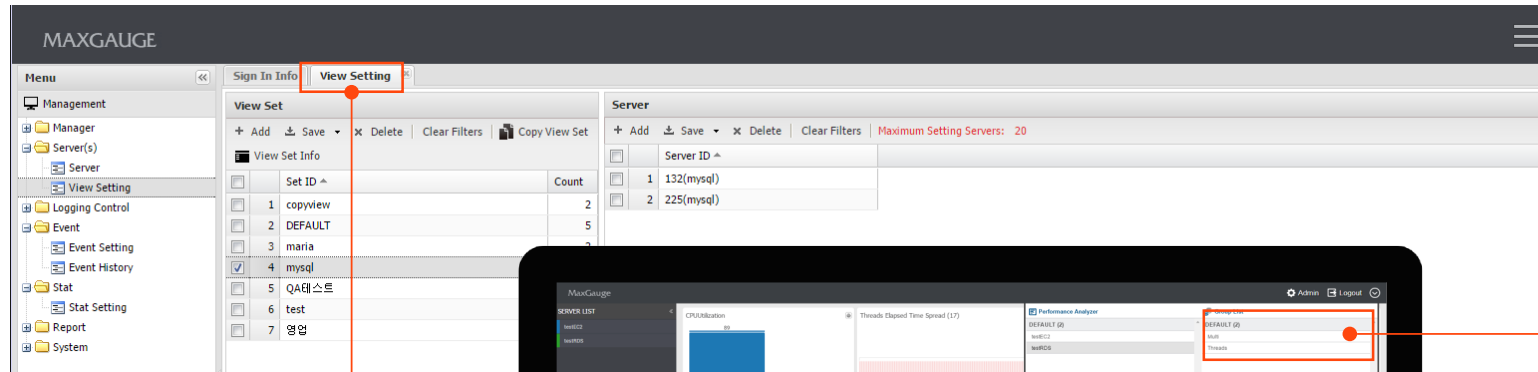
MAXGAUGE

Management + Add Save X Delete Clear Filters Copy Event Config Config User Event Event Setting History Download Print

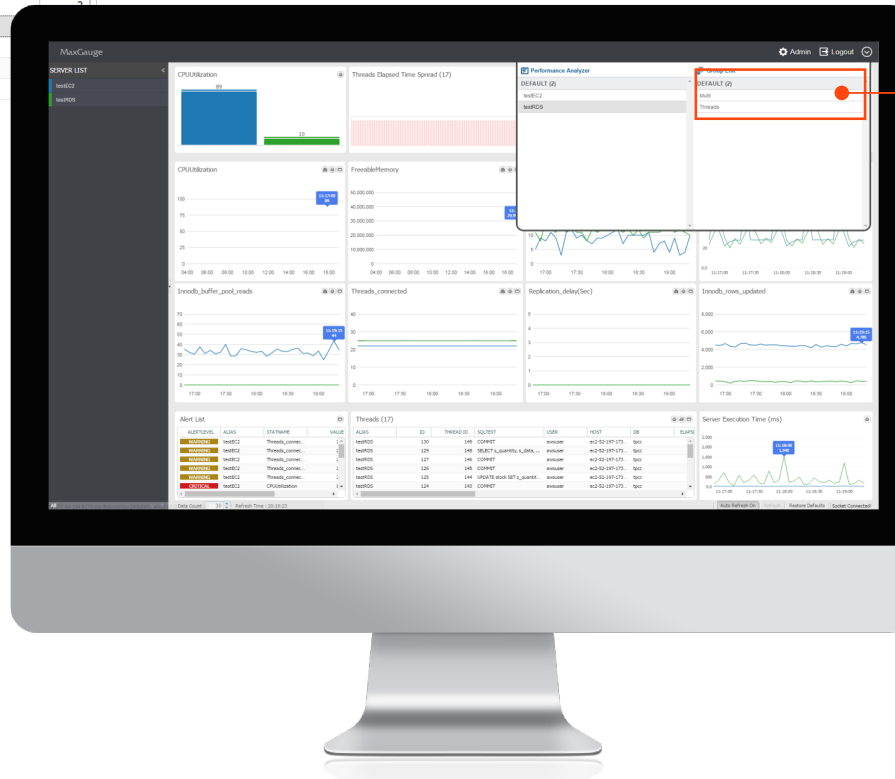
Server ID	Stat Name	Comparison	Warning	Critical
	From select...	>=	0	0
1	225(mysql) Threads_running	>=	10	15
2	225(mysql) CPU	>=	50	70
3	112(mysql) Threads_running	>=	10	15
4	112(mysql) CPU	>=	50	70
5	124(maria) CPU	>=	50	70
6	124(maria) Threads_running	>=	10	15
7	151(maria) Threads_running	>=	10	15
8	151(maria) CPU	>=	50	70
9	158(solars) Threads_running	>=	10	15
10	158(solars) CPU	>=	50	70

간편한 임계치 설정

작업 인스턴스별로 Admin Group 관리



View Setting 탭에서
작업 인스턴스별로 Grouping 가능



특정 Group
Multi View로 확인 가능

리파지토리에 저장된 데이터 분석을 위한 Performance Analyzer

로그 날짜 선택

로그 인스턴스 선택

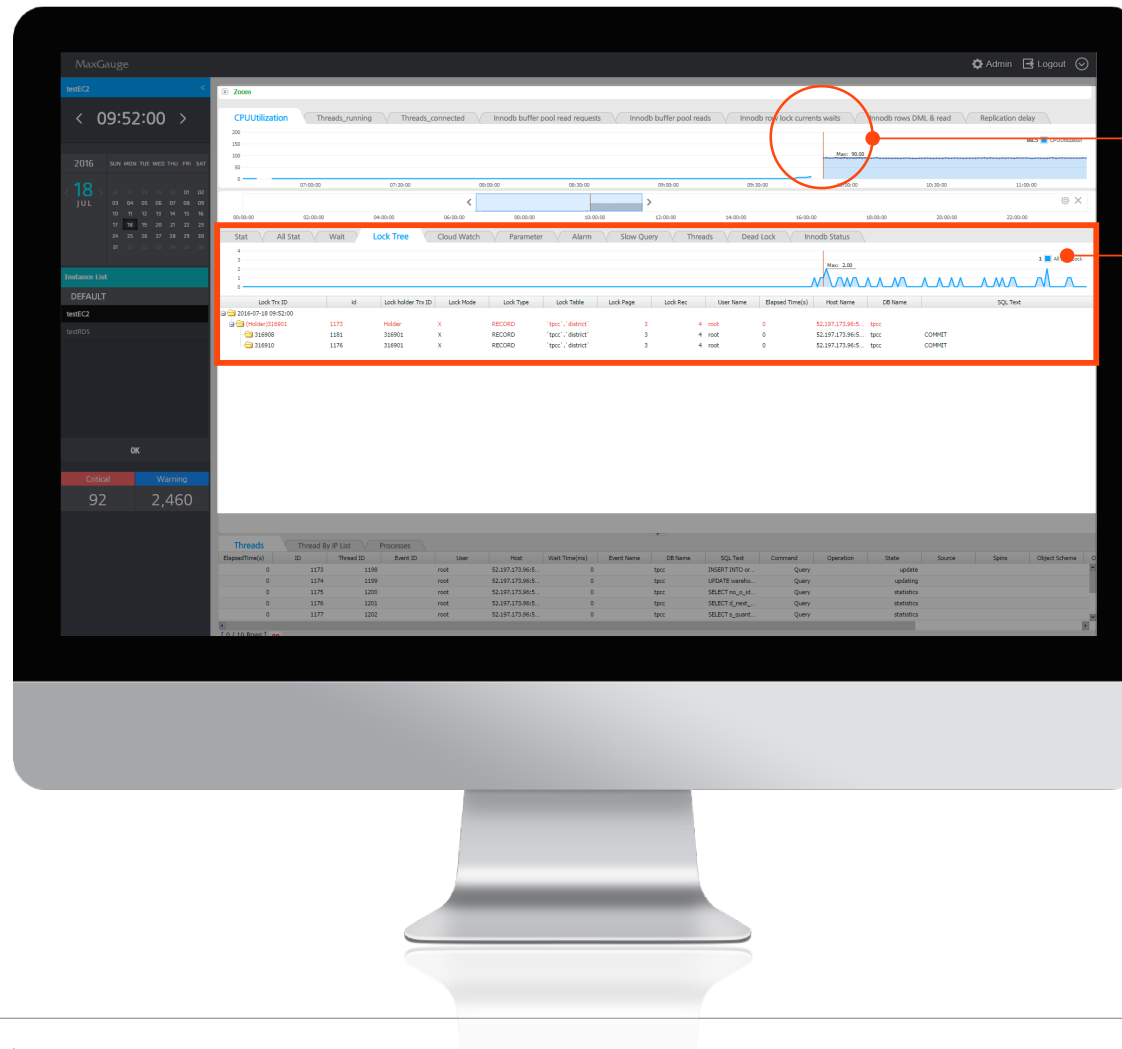
로그 알람개수

주요지표 Log 그래프

상세지표 Log 그래프

Active Thread 정보

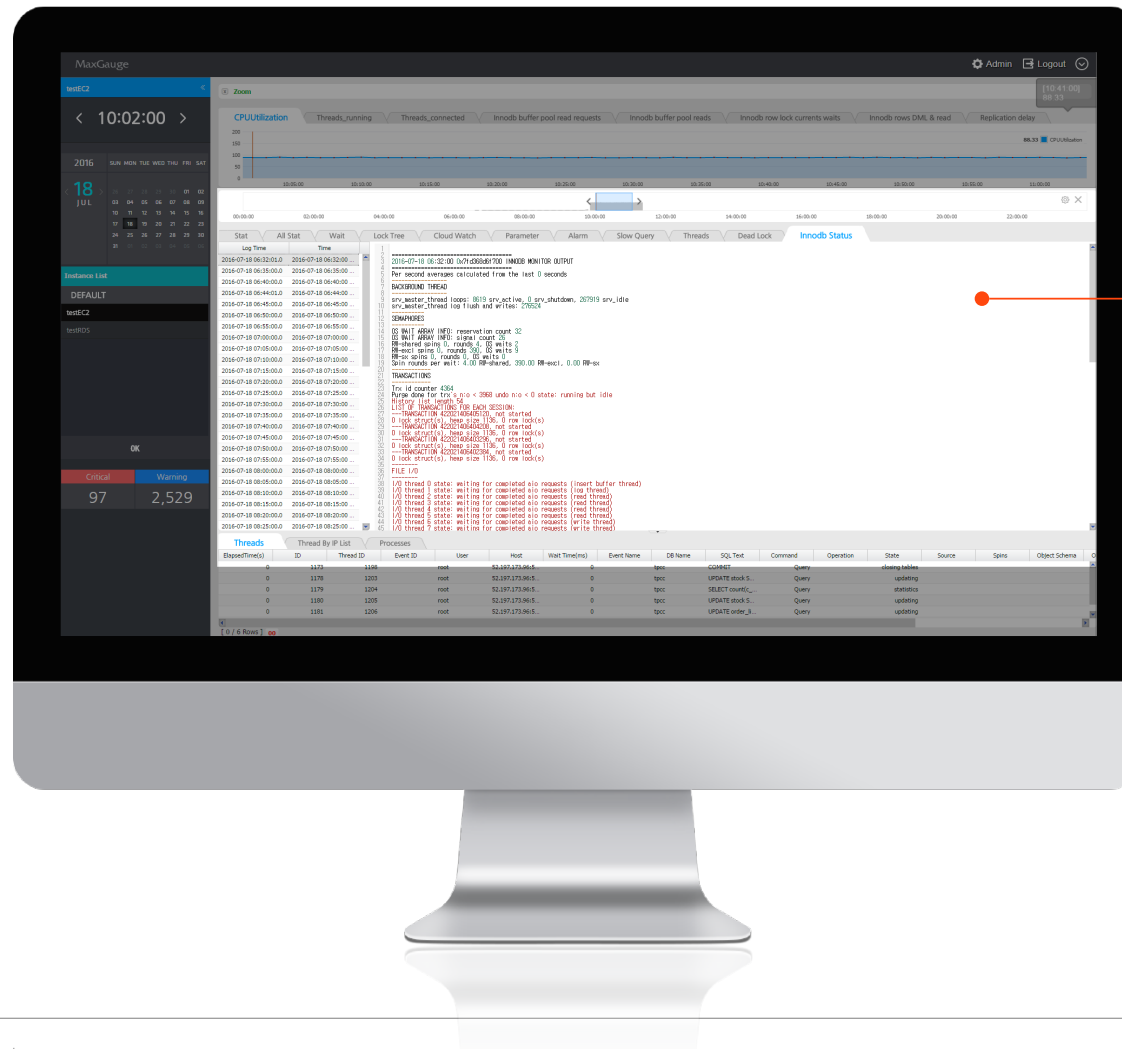
해당 시점의 LOCK 발생 내역을 트리 구조로 제공



특정 시간 때 드래그를 통해 상세 분석 가능

특정 시간 때의 Lock Tree 발생 확인 가능

InnoDB Status 정보 실시간 제공



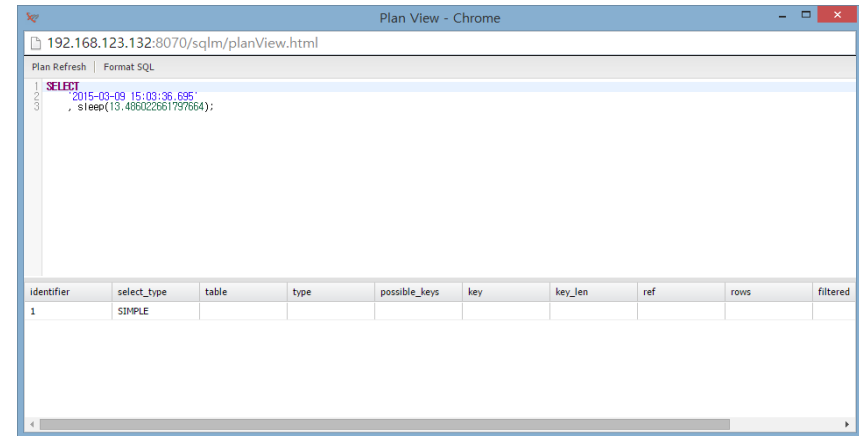
InnoDB Status를 5분 주기로 저장

특정 시점 SLOW QUERY TOP-DOWN 접근 분석

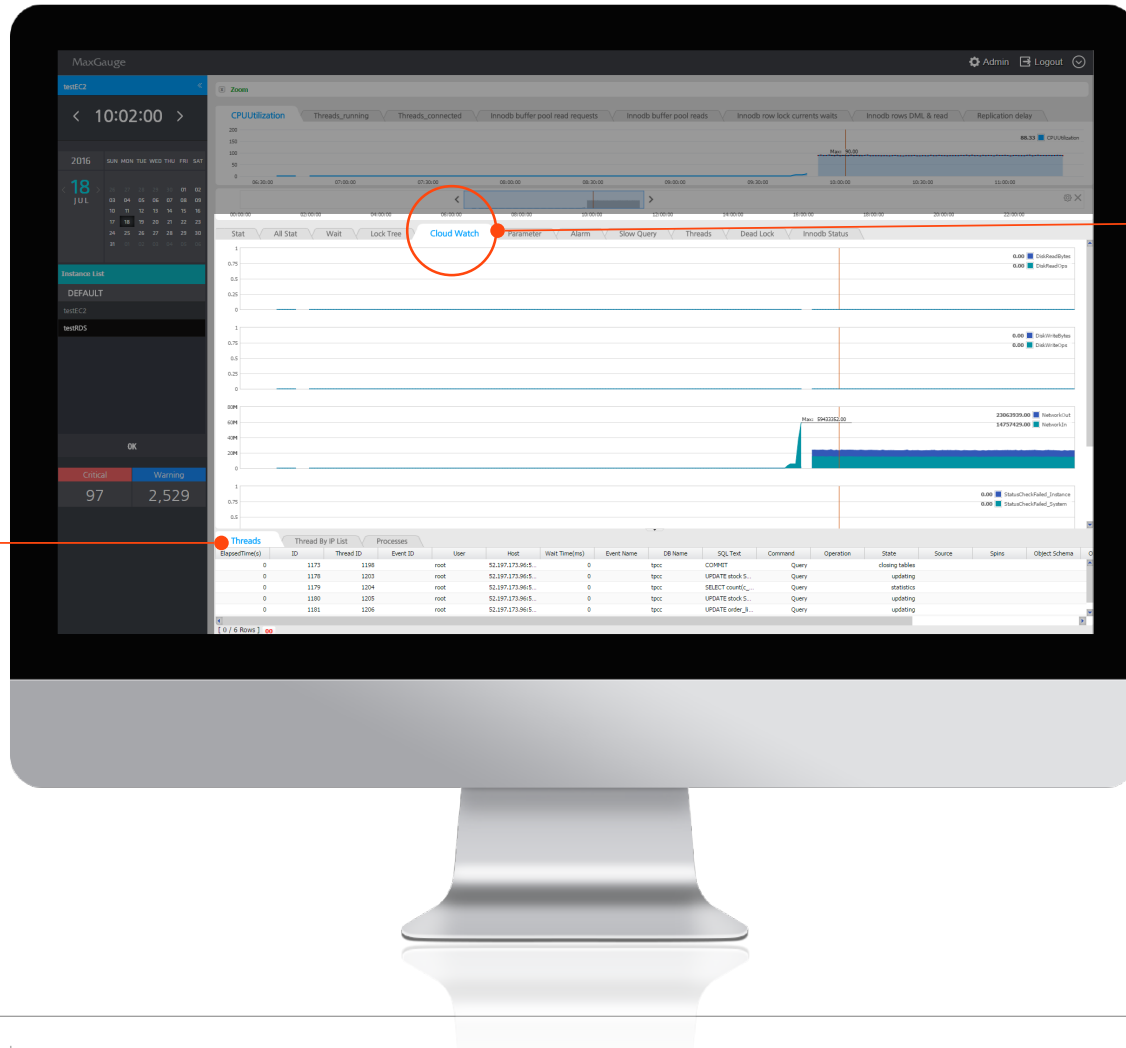
① 특정 시점을 마우스로 드래그하면 해당 시점의 Slow Query를 자세히 확인할 수 있음

LogTime	Start Time	User Host	Query Time	Lock Time	Rows Sent	Rows Examined	Server ID	SQL Text
2015-03-09 15:03:45	2015-03-09 15:01:14	root[root] @ [192.168.123.128]	00:00:13	00:00:00	1	0	0	SELECT '2015-03-09 15:03:36.695', sleep(13.486022661797664);
2015-03-09 15:03:49	2015-03-09 15:01:16	root[root] @ [192.168.123.128]	00:00:15	00:00:00	1	0	0	SELECT '2015-03-09 15:03:38.085', sleep(15.9080320201513);
2015-03-09 15:03:51	2015-03-09 15:01:20	root[root] @ [192.168.123.128]	00:00:12	00:00:00	1	0	0	SELECT '2015-03-09 15:03:42.826', sleep(12.867570291411136);
2015-03-09 15:03:55	2015-03-09 15:01:23	root[root] @ [192.168.123.128]	00:00:14	00:00:00	1	0	0	SELECT '2015-03-09 15:03:45.504', sleep(14.845465566184276);

② 확인하고 싶은 Slow Query를 더블 클릭하면 해당 쿼리를 확인할 수 있음

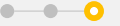


Cloud Watch 로그수집및DB 세션연계분석



Cloud Watch 지표와 DB세션
수행이력과 연계하여 문제 시점
분석 정보 제공

Cloud Watch 로그를
수집하고 조회 가능



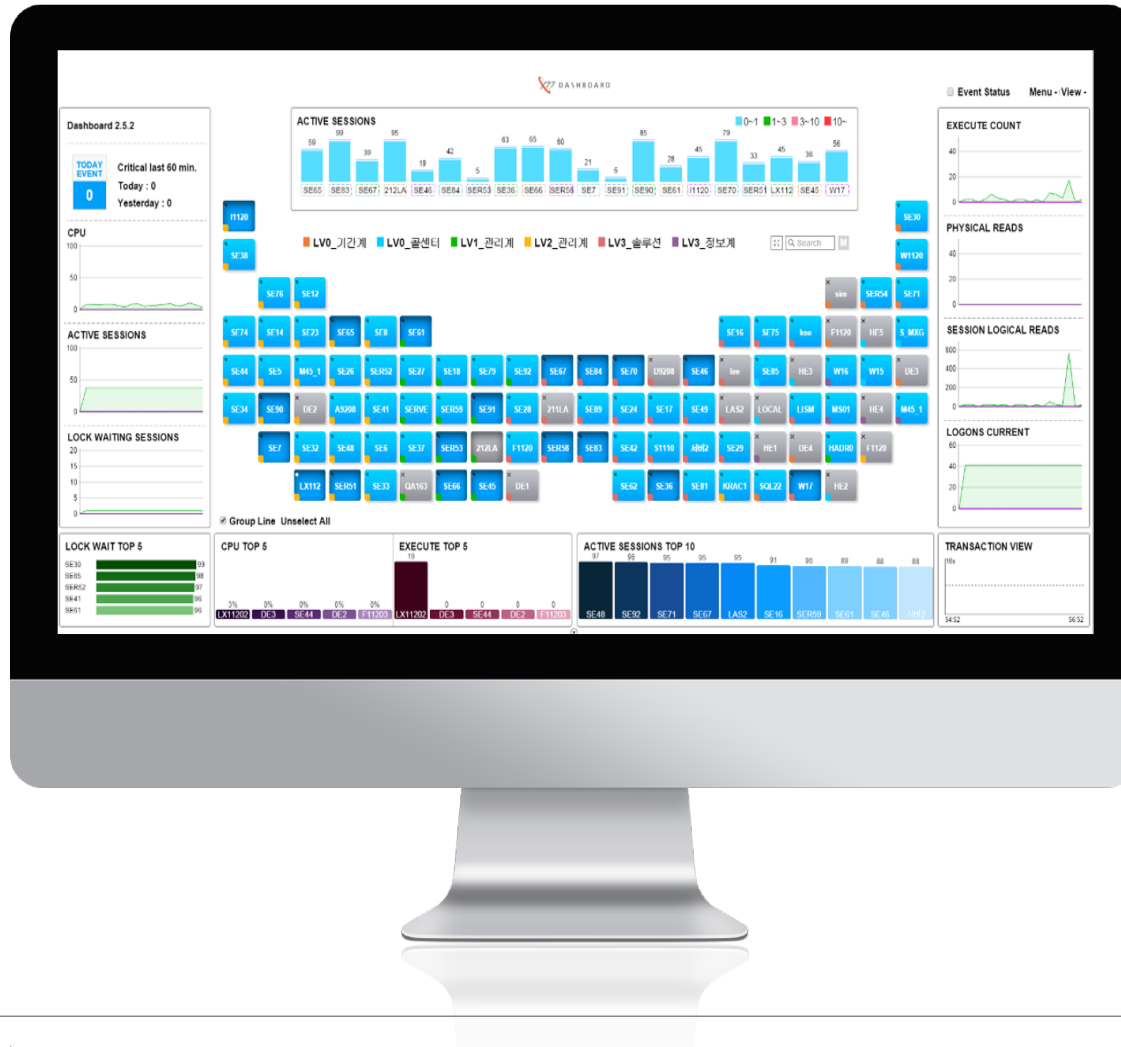
Enterprise Management System

EXEM DASHBOARD



EXEM Dashboard 를 통한 여러 Instance를 한눈에 Health Check!

EXEM Dashboard 3.0은 실시간으로 최대140개의 Instance를 한 화면에 구성할 수 있는 관제 화면으로 실시간 지표와 함께 장애 상황을 모니터 할 수 있습니다.



Real-Time Monitor / PA로 이어지는 강력한 연계 기능 제공

Dashboard에서 오른쪽 마우스 클릭으로 특정 인스턴스의 Real-Time Monitor 또는 Performance Analyzer로 이동이 가능합니다.





Thank you

