



SYNERGY
INFORMATION SYSTEMS



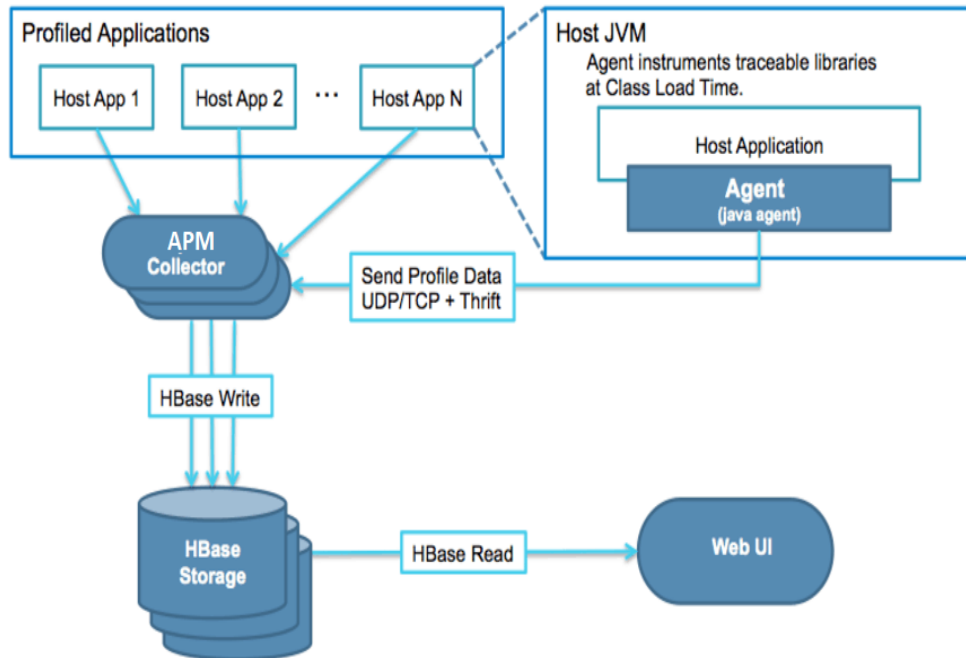
SIPMon
Synergy IP Monitor

SIPMon APM Features

Synergy Information Systems
3/23/2023

SIPMon APM

SIPMon APM is a state of the art application performance monitoring system that utilizes cutting edge technology to deliver a monitoring system that will simply amaze and go beyond one's imagination to deliver what it promises in truly innovative ways. While other products out there are more off the shelf, the ability of SIPMon APM to deliver an end to end totally customized solution guarantees peace of mind.



SIPMon APM platform easily eases into analyzing large-scale distributed systems and provide a solution to handle large collections of trace data.

The tool comprehensively analyzes the overall structure of the system and how components within them are interconnected, by tracing transactions across distributed applications. Meaning that it aims to explain how every transaction gets executed, trace the flows between the components and problematic areas and potential bottlenecks.

The dashboard helps visualize how the components are connected and lets you monitor active threads inside the applications in real time. It also lets you see the request count and response patterns, so that you'll be able to identify potential problems. You can view critical details that include CPU usage, memory/garbage collection, and JVM arguments.

SIPMon APM Features

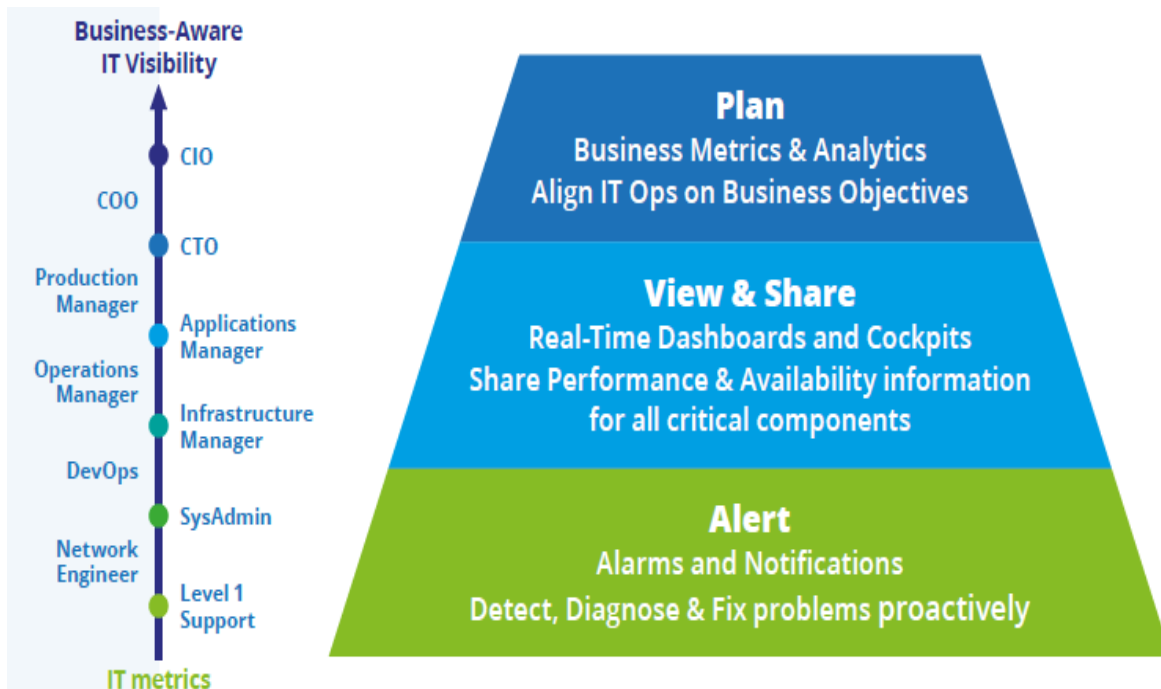
- Distributed transaction tracing to trace messages across distributed applications.
- Automatically detects the application topology that helps you to figure out the configurations of an application.
- Horizontal scalability to support large-scale server groups.
- Provides code-level visibility to easily identify points of failure and bottlenecks.
- Adding a new functionality without code modifications (zero code modifications), using the bytecode instrumentation technique.

In SIPMon APM, the core of data structure consists of Spans, Traces, and TraceIds.

- **Span:** The basic unit of RPC (Remote Procedure Call) tracing; it indicates work processed when an RPC arrives and contains trace data. To ensure the code-level visibility, a Span has children labeled SpanEvents as a data structure. Each Span contains a TraceId.
- **Trace:** A collection of Spans; it consists of associated RPCs (Spans). Spans in the same trace share the same TransactionId. A Trace is sorted as a hierarchical tree structure through SpanIds and ParentSpanIds.
- **TraceId:** A collections of keys consisting of TransactionId, SpanId, and ParentSpanId. The TransactionId indicates the message ID, and both the SpanId and the ParentSpanId represent the parent-child relationship of RPCs.
- **TransactionId (TxId):** The ID of the message sent/received across distributed systems from a single transaction; it must be globally unique across the entire group of servers.
- **SpanId:** The ID of a job processed when receiving RPC messages; it is generated when an RPC arrives at a node.
- **ParentSpanId (pSpanId):** The SpanId of the parent span which generated the RPC. If a node is the starting point of a transaction, there will not be a parent span - for these cases, we use a value of -1 to denote that the span is the root span of a transaction.

Visibility of SIPMon

Through, implementing SIPMon APM and SIPMon SD NMS in tandem, would be able access end to end transaction views, including real-time information of all layers where the client would be able to drill down from the Application Layer to the Hardware Layer's entry point in a single pane of window. This complete eliminates the need for implementing various tools from vendors to have gather all the necessary data/information, which is a cumbersome process that is faced by most businesses today.



Drill down from highest-level views to the most granular details in just a few clicks and Organize Level 1 support around dedicated monitoring consoles for efficient 24/7 response and proactive incident management.

SIPMon APM Support Matrix

Supported Linux OSs

Application Performance Management (APM) supports multiple Linux Operating Systems (OSs).

OS	Version			
SUSE	SUSE Enterprise 11 SP4 64-bit	SUSE Enterprise 12 SP1 64-bit	SUSE Enterprise 12 SP2 64-bit	SUSE Enterprise 12 SP3 64-bit
openSUSE	13.2 64-bit	15.0 64-bit Currently, syslog logs cannot be collected.	42.2 64-bit	
EulerOS	2.2 64-bit		2.3 64-bit	
CentOS	6.3 64-bit	6.5 64-bit	6.8 64-bit	6.9 64-bit
	6.10 64-bit	7.1 64-bit	7.2 64-bit	7.3 64-bit
	7.4 64-bit	7.5 64-bit	7.6 64-bit	
Ubuntu	14.04 server 64-bit	16.04 server 64-bit	18.04 server 64-bit	
Fedora	24 64-bit	25 64-bit	29 64-bit	
Debian	7.5.0 32-bit	7.5.0 64-bit	8.2.0 64-bit	8.8.0 64-bit
	9.0.0 64-bit			

Table 2 Supported Java types

Type	Name	Version
Tool	JDK	JDK 7 and JDK 8
Communications protocol	HttpClient	Apache HttpClient 3, Apache HttpClient 4, and JDK HttpURLConnection
Java framework	CXF Client	2.6.0–3.2.1
	iBATIS	2.3.0 and 2.3.4.726
	Jersey	2.0–2.9.1
	MyBatis	1.0.0–1.3.1 (MyBatis-Spring) and 3.0.1–3.4.5 (MyBatis 3)
	Spring	3.1.x–5.0.x
	springboot	1.2.x–1.5.x and 2.0.4–2.0.9
	Dubbo	2.5.3–2.6.2 (Dubbo RPC and Dubbo REST) and 2.8.4 (Dubbo RPC and Dubbo REST)
	Huawei's Cloud Service Engine (CSE)	1.0.0.B011–1.1.0.B046 (REST over Servlet, REST over Vert.x, and Highway RPC)
	gRPC	1.11.x–1.14.x
Database	MySQL	5.1.x

Table 2 Supported Java types

Type	Name	Version
	Oracle	ojdbc5, ojdbc6, and ojdbc14
	Sybase	2.6.0–3.2.1
	MariaDB	1.3.x
	VoltDB	6.x–7.x
	PostgreSQL	9.0.x, 9.1.x, 9.2.x, 9.3.x, 9.4.x, 42.0.x, and 42.1.x
Web server	Tomcat	6.x, 7.x, and 8.x
	Jetty	7.6.x–8.0.0 and 8.1.x–9.x.x
	JBoss.	7.0.0–12.0.0
	Undertow	1.4.x
Message queue	ActiveMQ	5.6.x–5.15.x
	RocketMQ	4.1.x–4.2.x
	RabbitMQ	1.3.3 and later (spring-rabbit), 2.7.x (amqp-client), 2.6.0, and 3.6.5
	Kafka	0.9.0.1–0.10.0.2
NoSQL	Redis	2.0.0–2.9.0

Table 2 Supported Java types

Type	Name	Version
	Memcache	2.9.0–2.12.3 (Arcus)
	MongoDB	3.0.x–3.6.x
	Cassandra	2.1.x–3.2.x
	ZooKeeper	1 ++
	Elasticsearch	2.4.x and 5.1.x
Rest Client	Common HTTP	2.x, 3.x, 4.x (HttpClient), and all (HttpURLConnection)

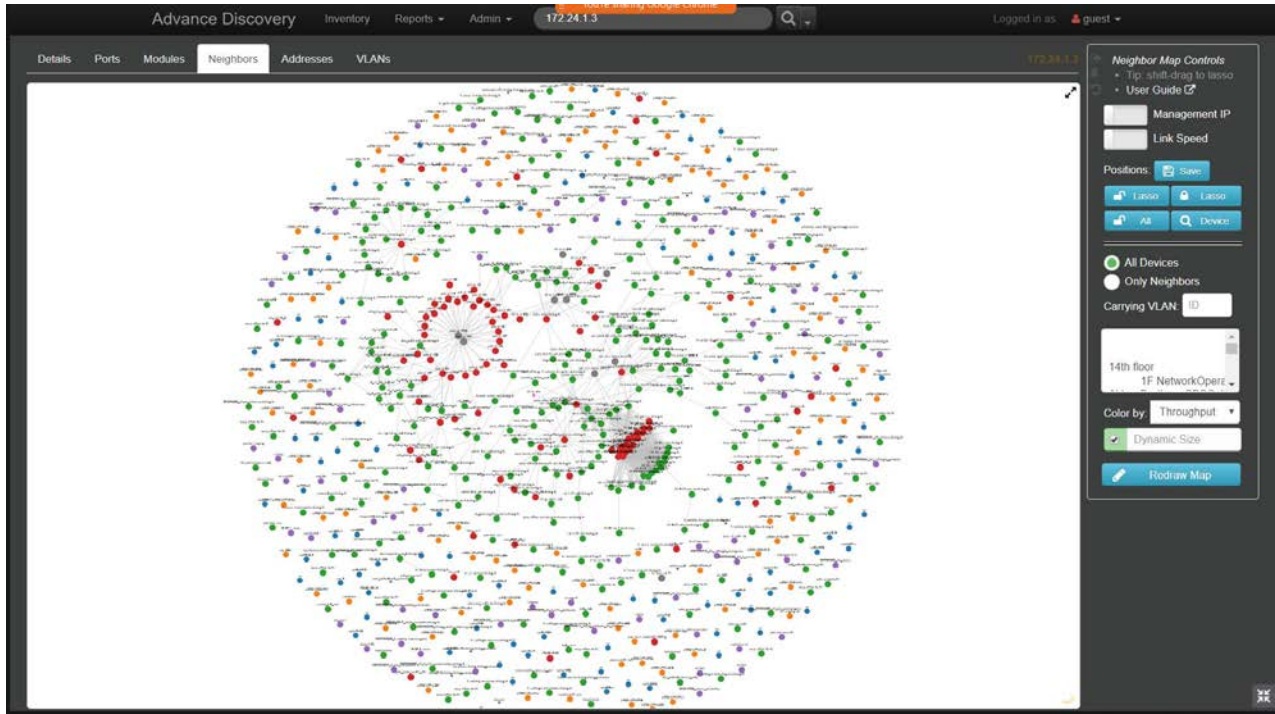
Supported PHP Types

SIPMon APM can connect to PHP applications.

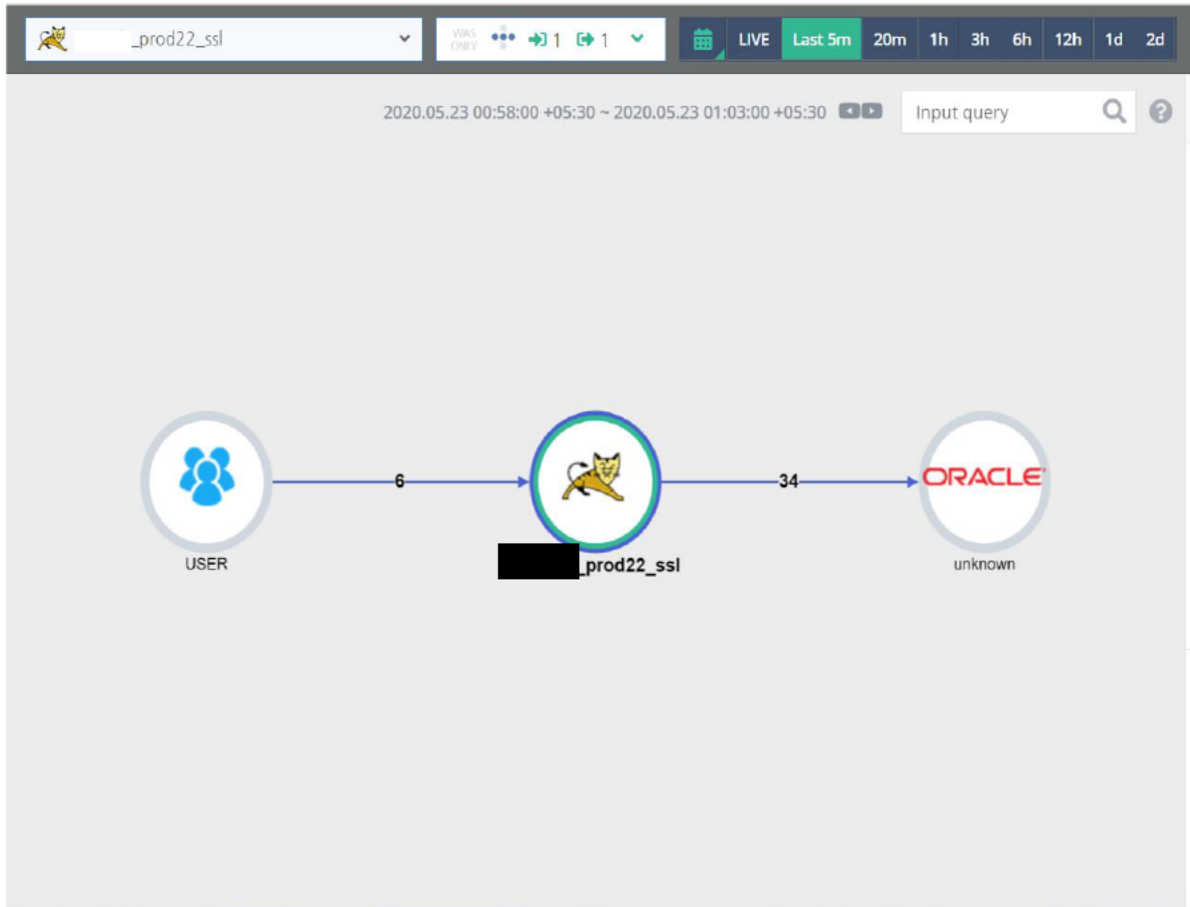
Table 3 Supported PHP types

Type	Name	Version
PHP version	PHP	7.2.x and 7.0.x
PHP database	MySQL	All

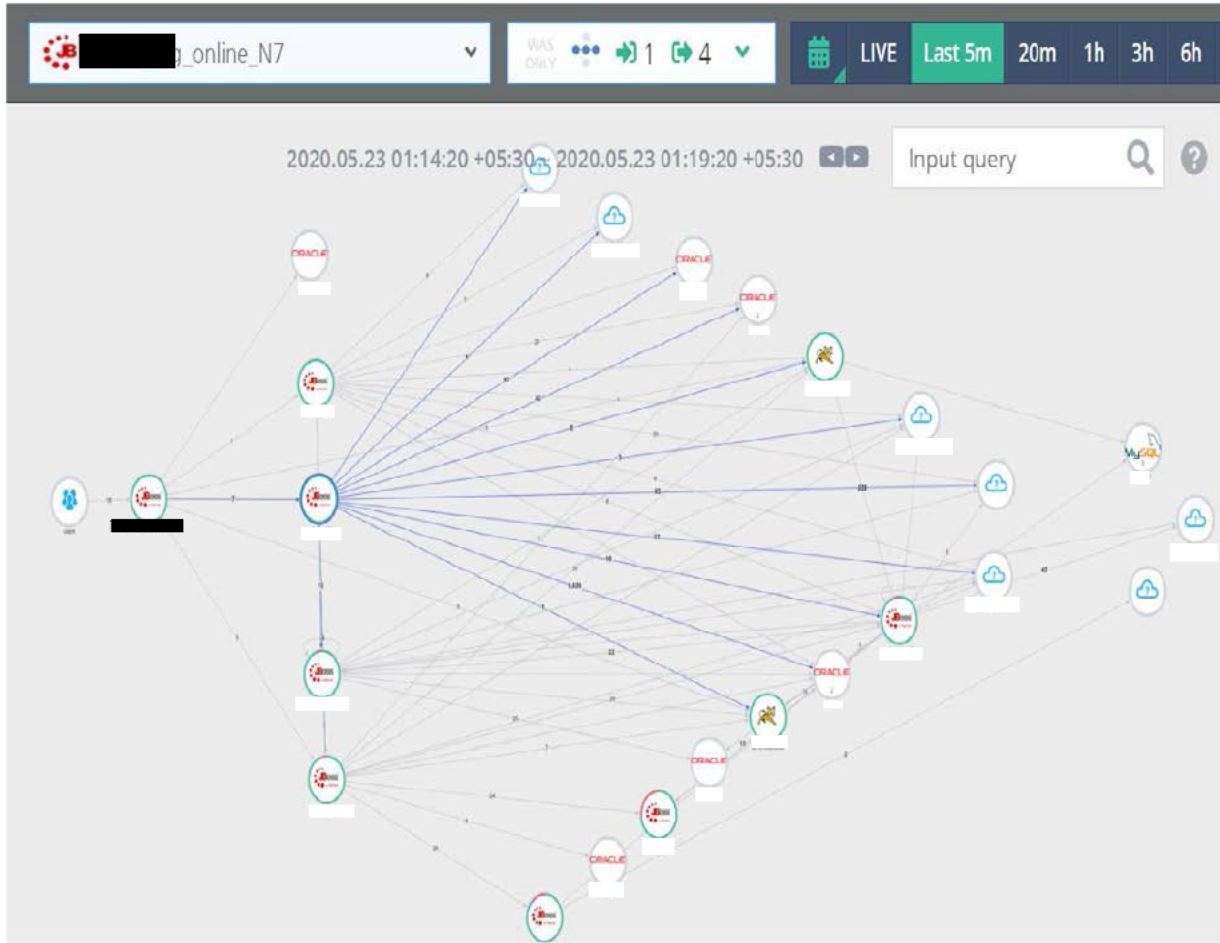
A Bird's Eye View of a Discovered Network



A User Reaches the 2nd Node...



And Beyond 2nd Node It's as Complex as IT Gets...



Errors Generated in a 5 Mins Time Period



Errors Generated in a 1 Day



Detailed View of Errors Generated Up To Code Level

The screenshot displays the SIPMon APM interface. At the top, a timeline shows the current time as 15:00. A button labeled 'More (100/7573)' is visible in the top right corner. Below the timeline is a table listing several transactions with columns for #, StartTime, Path, Res(ms), Exception, Agent, Client IP, and Transaction. The table shows four transactions, all with exceptions (indicated by a red flame icon) and response times ranging from 192ms to 250ms.

Below the table, the application details are shown: ApplicationName: hotline-service, AgentId: hotline-service, TransactionId: hotline-service^...389..., Path: ...336. There are navigation buttons for 'Call Tree', 'Server Map', 'Timeline', 'Mixed View', and 'Complete'. A search bar is also present.

The 'Call Tree' view is expanded, showing a detailed view of the transaction. The table below shows the call stack with columns for Method, Argument, StartTime, Gap(ms), Exec(ms), Exec(%), Self(ms), Class, API, Agent, and Appli. The call stack includes:

- http.status.code with argument 500
- REMOTE_ADDRESS
- executeRootHandler(HttpHandler ha... at 15:01:37 041, 0 gap, 212 exec, 3 Connectors, UNDERTOW_... 18-ho... IEC
- doGet(HttpServletRequest request... at 15:01:37 042, 1 gap, 209 exec, 5 Framework, SPRING, 8-ho... EC
- NestedServletException: Request processing failed...
- getConnectionUsa... at 15:01:37 047, 5 gap, 204 exec, 204 HotlineContro..., SPRING_BEAN, 8-ho... :C
- ResourceAccessExcept: I/O error on POST reques...
- doGet(HttpServletRequest request, at 15:01:37 253, 2 gap, 0 exec, 0 Framework, SPRING, 8-ho... EC