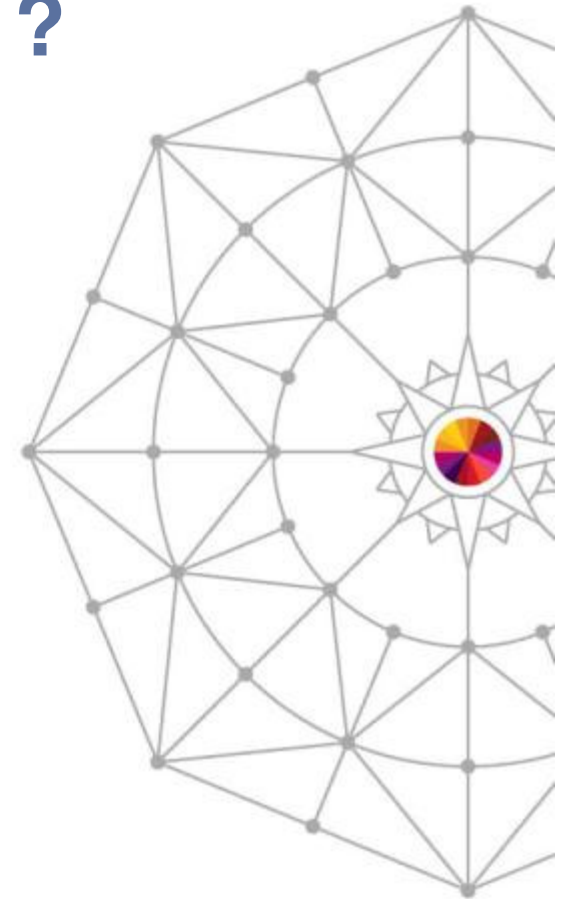




Need a Support Assistant ? Check Out IBMs - ISA

Michael Stephen
IBM

Thursday, March 13, 2014
Session # 14709



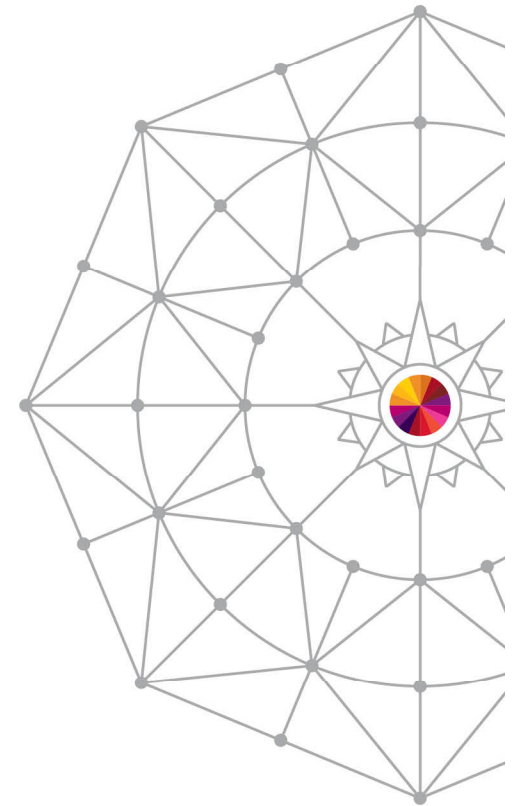
WebSphere Application Server on System Z



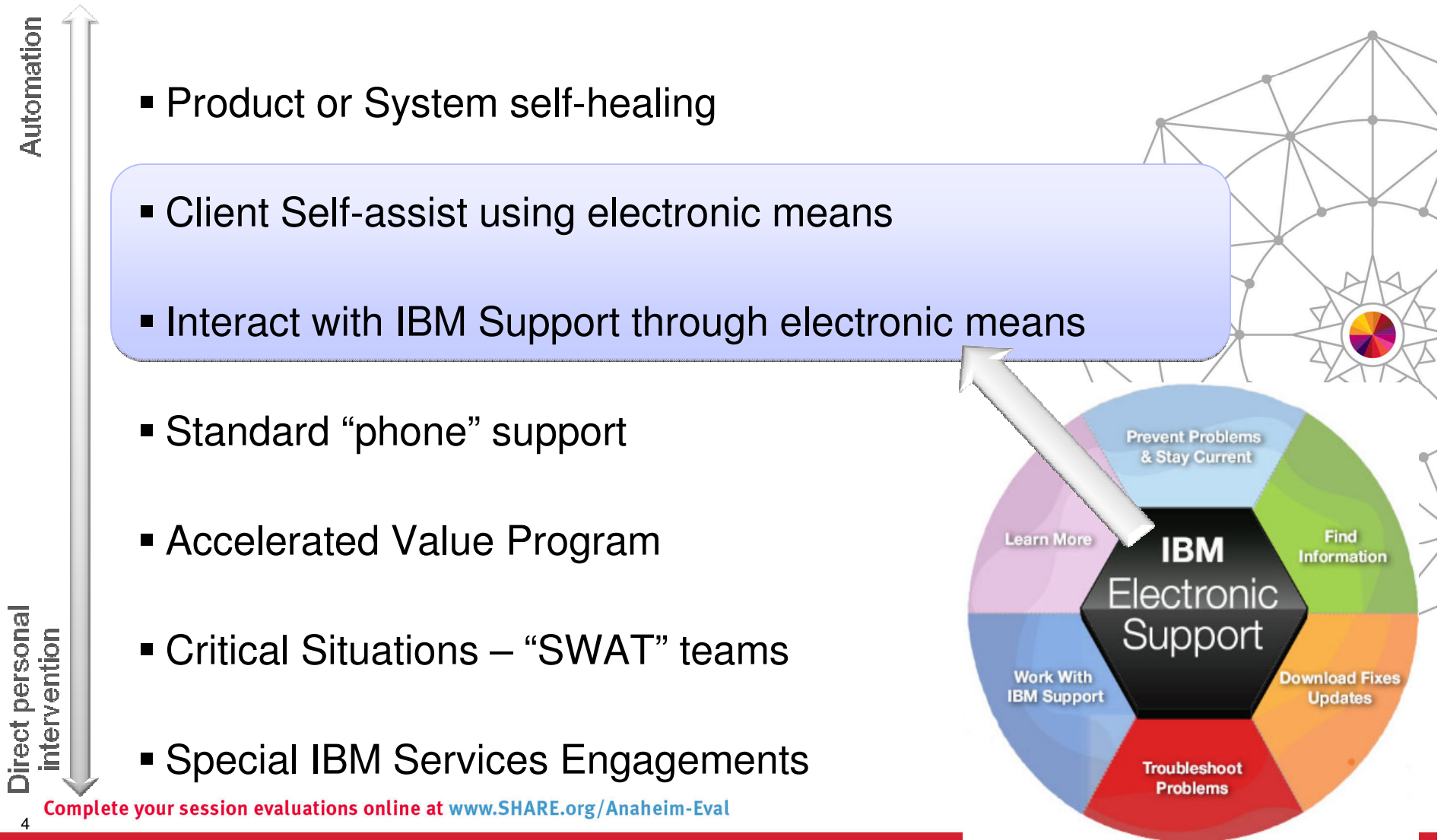
Session	Title	Time	Room	Speaker
14618	Getting Started with WebSphere Liberty Profile on z/OS	Monday 9:30	Grand Ballroom Salon C	Loos/Follis
14692	Getting Started with WebSphere Compute Grid	Tuesday 9:30	Grand Ballroom Salon J	Hutchinson/Loos
14693	Using WebSphere Application Server Optimized Local Adapters (WOLA) to Migrate Your COBOL to zAAP-able Java	Wednesday 9:30	Grand Ballroom Salon K	David Follis
14620	WebSphere Liberty Profile on Windows AND z/OS (among other things) Hands-on Lab	Wednesday 1:30	Platinum Ballroom Salon 7	
14949	Tips Learned Implementing Websphere Application Server (WAS) on Linux for IBM System z	Wednesday 3:00	Grand Ballroom Salon G	Eberhard Pasch
14709	Need a Support Assistant? Check Out IBM's! (ISA)	Thursday 8:00	Grand Ballroom Salon A	Mike Stephen
15050	z/OSMF 2.1 Implementation and Configuration	Thursday 8:00	Grand Ballroom Salon G	Greg Daynes
14832	Web Apps using Liberty Profile Technology in CICS	Thursday 11:00	Platinum Ballroom Salon 2	Ian Mitchell
14722	Assimilating WebSphere Application Server into your z/OS WLM Configuration	Thursday 1:30	Orange County Salon 1	David Follis
15017	Using IBM WebSphere Application Server and IBM WebSphere MQ Together [z/OS & Distributed]	Thursday 3:00	Grand Ballroom Salon A	Ralph Bateman

The Big Picture – how does IBM provide support

- Modes of Support interaction
- Problem types and classification
- Key components of the Serviceability Strategy
 - Serviceability Framework / Delivery Platforms
 - Knowledge and Education
 - Problem Determination tools
 - Serviceability features in the product runtimes



Modes of Support Interaction



Key Components of the Serviceability Strategy

▪ Serviceability Framework / Delivery Platforms

- Web-based eSupport resources, Support Portal, **IBM Support Assistant (ISA), ISA Data Collector**, Fix Central, Archive Explorer, ...

▪ Knowledge and Education

- Technotes, Knowledge Engineering, IBM Education Assistant, WAS Support Technical Exchange, Problem Determination Courses, ...

▪ Problem Determination Tools

- Java Health Center, Memory Analyzer, Automated Analysis, Cross-component Trace Viewer, Trace and Request Analyzer, WebSphere Config Visualizer, ...

▪ Serviceability features in the product

- Log/trace, FFDC, hung thread detection, serviceability defect process, ...

▪ Metrics and PMR Causal Analysis

- RETAIN statistics, OPC, Aged PMR reviews, SWAT debriefs, ad-hoc PMR reviews, ...

Many deliverables are the result of collaboration between many different teams – they are all discussed here without regard to origin

Addressing Common Challenges

Collecting Key Data

Challenge:

To resolve software issues, analyzing key data is essential, but it is often hard to locate and collect in a timely manner

Shorten time to resolution

Quickly collect diagnostic files or run traces that are predefined for products. View files easily and, optionally, send to IBM swiftly.



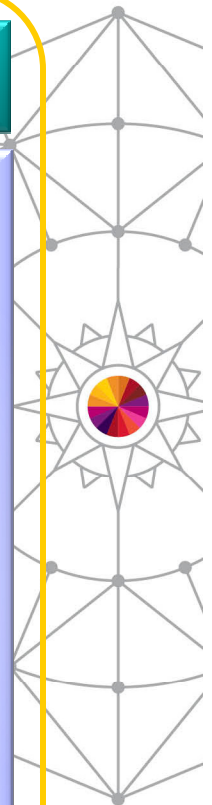
Troubleshooting Problems

Challenge:

Complexity of certain problems and configurations requires specialized tooling

Discover root cause

Problem determination tooling that allows diagnostics and analysis for problem resolution.



Troubleshooting problems

- Application coding errors
- Environment variables
- Performance tuning
- Configuration problems

Complex problems

Symptom/solution
discovery

- Many diagnostic files
- Many messages
- Importance of message

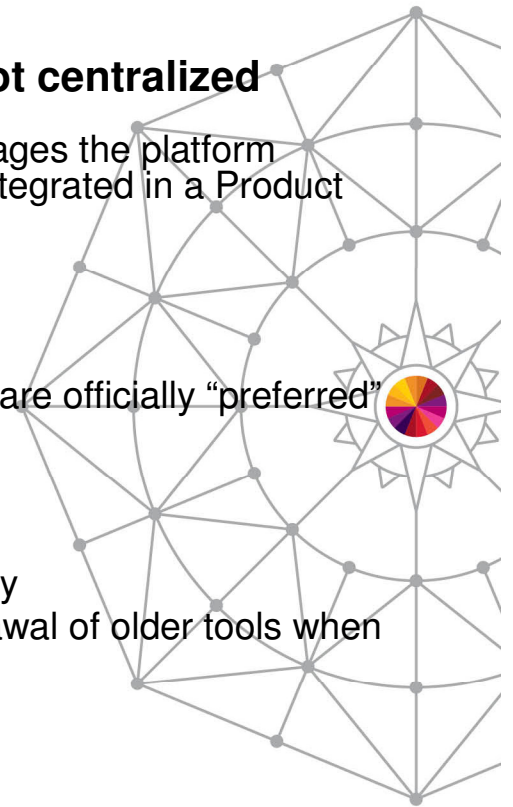
- Goal:
 - Discover root cause
- Challenges:
 - Complexity – certain problems and configurations require specialized tooling
 - Discovery - symptoms can be difficult to uncover and match to knowledge



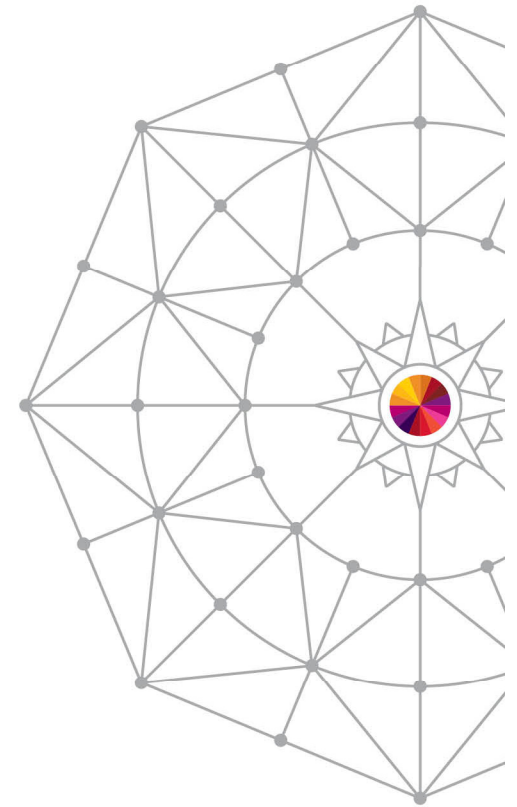
Some Notes about Problem Determination Tools



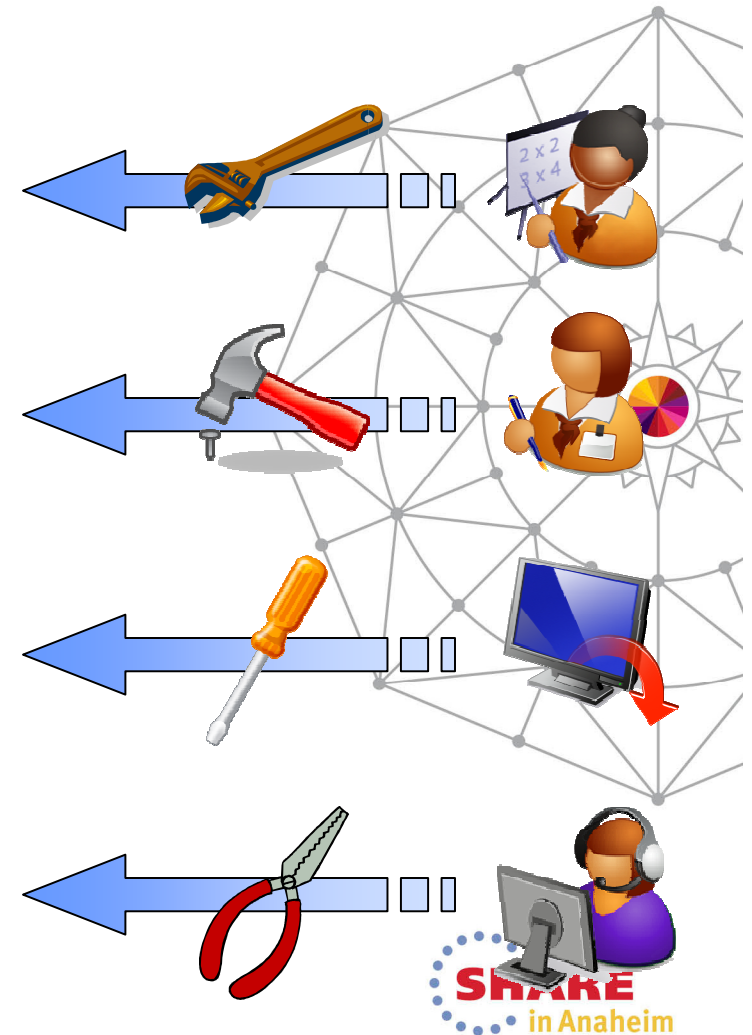
- **The development of Problem Determination tools within IBM is not centralized**
 - Various product teams, support teams and individuals create their own tools
 - The Serviceability Tools Team coordinates these various offerings and manages the platform
 - Trying to centralize as many tools as possible in IBM Support Assistant or integrated in a Product
- **Sometimes there will be several tools with overlapping functions**
 - Various individuals may have their preferences for one tool over another
 - The Serviceability Tools Team will help clarify and designate the tool(s) that are officially “preferred” by IBM for its Clients
- **Tools evolve over time**
 - Today’s “best-of-breed” tool may be replaced by an even better one someday
 - The Serviceability Tools Team manages the orderly deprecation and withdrawal of older tools when appropriate
- **The current strategic push is towards server-based tools**
 - To facilitate deployment in cloud-type environments, such as IBM Support Assistant 5.0



IBM Support Assistant Workbench 4.1

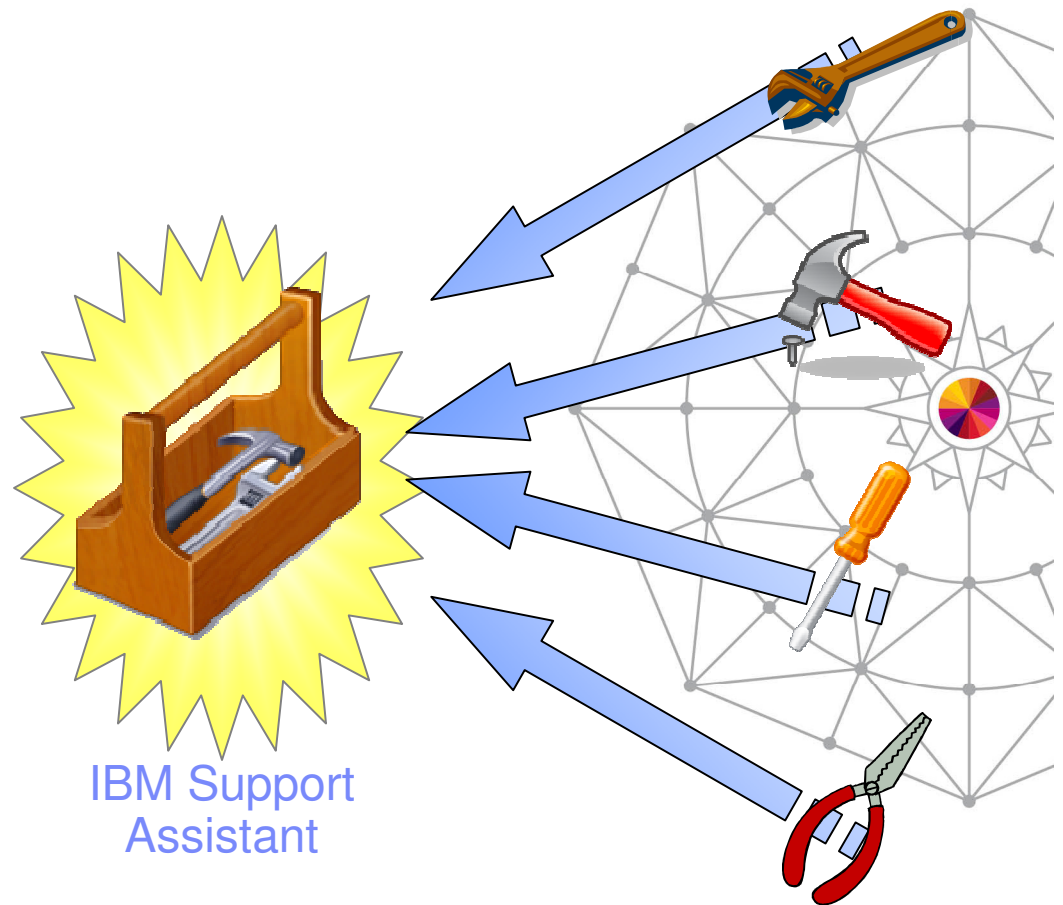


Specialized tool sources



Complete your session evaluations online at www.SHARE.org/Anaheim-Eval

IBM Support Assistant – One-stop toolbox



IBM Support
Assistant

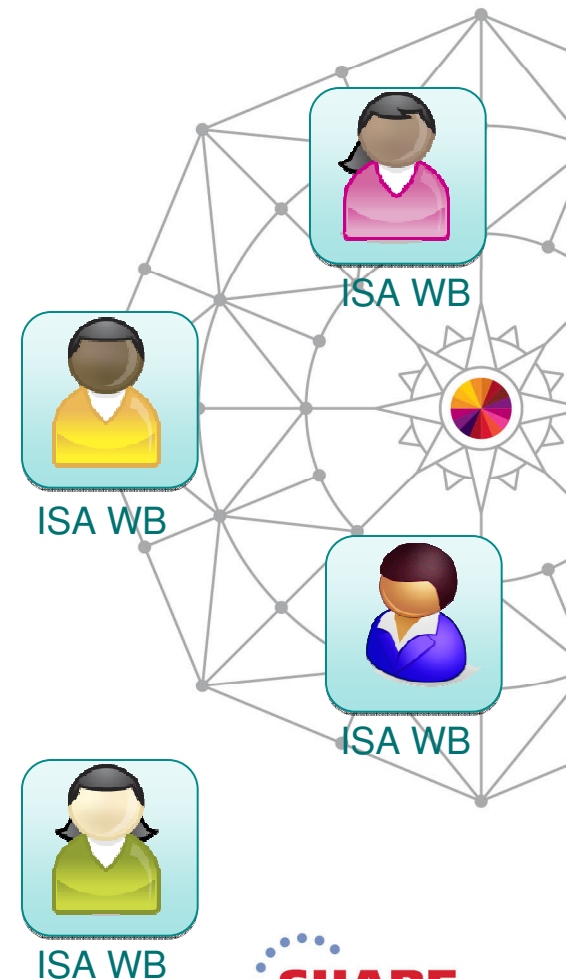


Complete your session evaluations online at www.SHARE.org/Anaheim-Eval

Today – IBM Support Assistant (ISA) Workbench

ISA Workbench 4.1

- Eclipse-based client
- Workbench is installed on each desktop (single user)
- Collect and organize diagnostic data (logs, traces, etc.)
- Find and use Problem Determination tools
- Search and browse support-related information about IBM products
- Open and manage PMRs (*phasing out*)



IBM Support Assistant Workbench 4.1



Desktop serviceability application

Provides you with the function and tools to analyze and diagnose your software problems

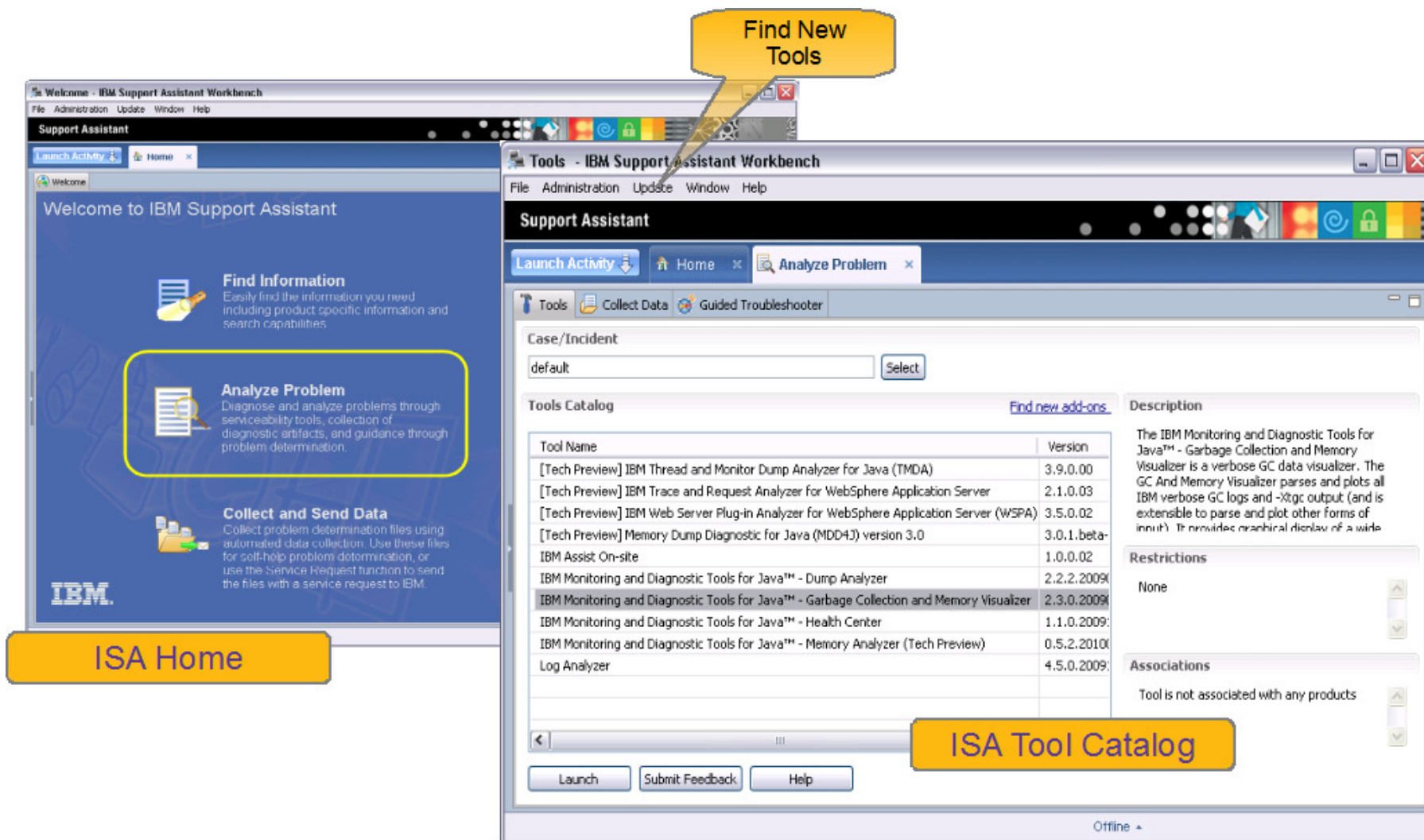
Over one hundred “add-ons” available for various IBM products

Tailored for your needs



Complete your session evaluations online at www.SHARE.org/Anaheim-Eval

ISA Workbench – Launching Tools



The image shows two overlapping windows from the IBM Support Assistant Workbench. The 'ISA Home' window (left) has a blue background and features three main sections: 'Find Information', 'Analyze Problem' (highlighted with a yellow box), and 'Collect and Send Data'. The 'Tools' window (right) displays the 'Tools Catalog' with a table of available tools. A yellow callout bubble points to the 'Find New Tools' button in the top right corner of the 'Tools' window. Another yellow callout bubble points to the 'ISA Tool Catalog' section at the bottom of the 'Tools' window.

Find New Tools

ISA Home

ISA Tool Catalog

Tool Name	Version
[Tech Preview] IBM Thread and Monitor Dump Analyzer for Java (TMDA)	3.9.0.00
[Tech Preview] IBM Trace and Request Analyzer for WebSphere Application Server	2.1.0.03
[Tech Preview] IBM Web Server Plug-in Analyzer for WebSphere Application Server (WSPA)	3.5.0.02
[Tech Preview] Memory Dump Diagnostic for Java (MDD4J) version 3.0	3.0.1.beta
IBM Assist On-site	1.0.0.02
IBM Monitoring and Diagnostic Tools for Java™ - Dump Analyzer	2.2.2.2009
IBM Monitoring and Diagnostic Tools for Java™ - Garbage Collection and Memory Visualizer	2.3.0.2009
IBM Monitoring and Diagnostic Tools for Java™ - Health Center	1.1.0.2009
IBM Monitoring and Diagnostic Tools for Java™ - Memory Analyzer (Tech Preview)	0.5.2.2010
Log Analyzer	4.5.0.2009

Description
The IBM Monitoring and Diagnostic Tools for Java™ - Garbage Collection and Memory Visualizer is a verbose GC data visualizer. The GC And Memory Visualizer parses and plots all IBM verbose GC logs and -Xtgc output (and is extensible to parse and plot other forms of input). It provides graphical display of a wide...

Restrictions
None

Associations
Tool is not associated with any products

ISA Workbench – Diagnostic Tools

Cross-product Environment Troubleshooting

Log Analyzer Guided Troubleshooter

Visual Configuration Explorer Port Scanner Tool

Processor Time Analysis Tool for Linux

WebSphere Troubleshooting

Web Server Plug-in Analyzer for WAS IBM Trace and Request Analyzer for WAS

Database Connection Pool Analyzer for WAS

WAS Analysis Module for Dump Analyzer IBM Web Services Validation Tool

Java Troubleshooting

★ Memory Analyzer ★ IBM Thread and Monitor Dump Analyzer

Performance Analysis Tool

Heap Analyzer Memory Dump Diagnostic for Java

★ Health Center

Multicore Software Development Kit for Java Garbage Collection and Memory Visualizer

★ Interactive Diagnostic Data Explorer IBM Pattern Modeling and Analysis Tool

Lotus Troubleshooting

Lotus Notes Diagnostic Domino Configuration Tuner

IM / FileNet Troubleshooting

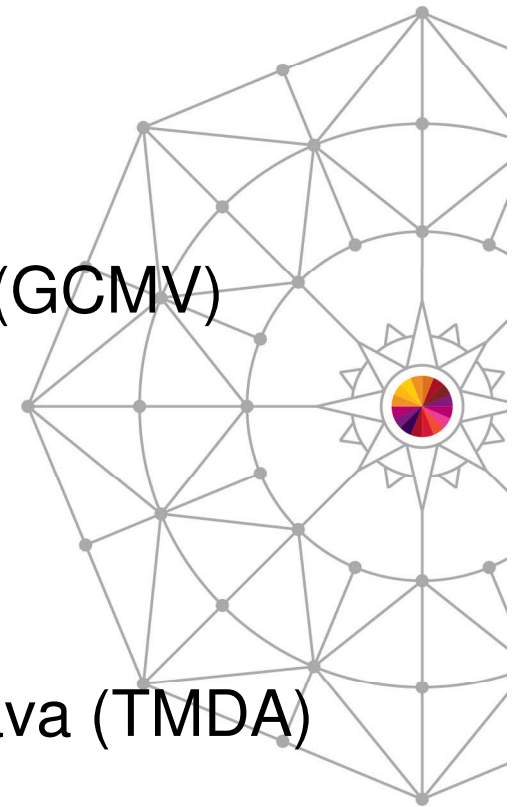
FileNet OSAR Cable Tool

Remote assistance

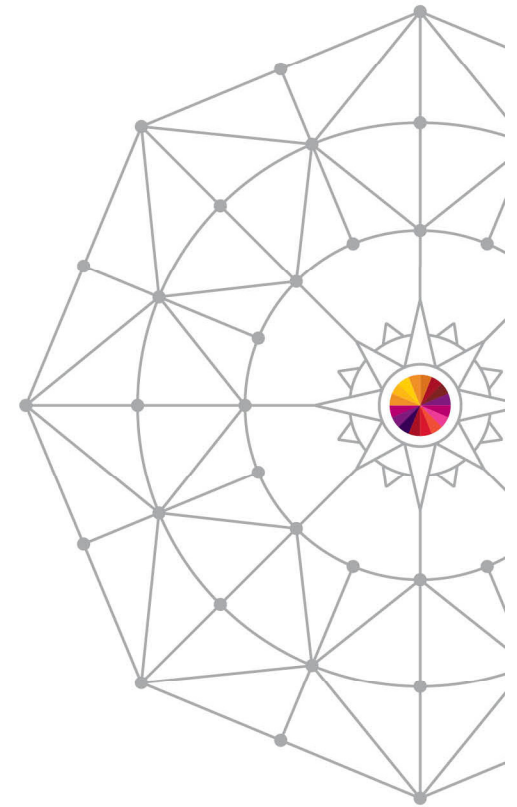
Assist on-site

IBM Recommended Java Troubleshooting Tools

- IBM Monitoring and Diagnostic Tools for Java
 - Garbage Collection and Memory Visualizer (GCMV)
 - Memory Analyzer (MAT)
 - Health Center
 - Interactive Diagnostic Data Explorer *(new)*
- IBM Thread and Monitor Dump Analyzer for Java (TMDA)
[Tech Preview]



IBM Support Assistant 5



IBM Support Assistant 5

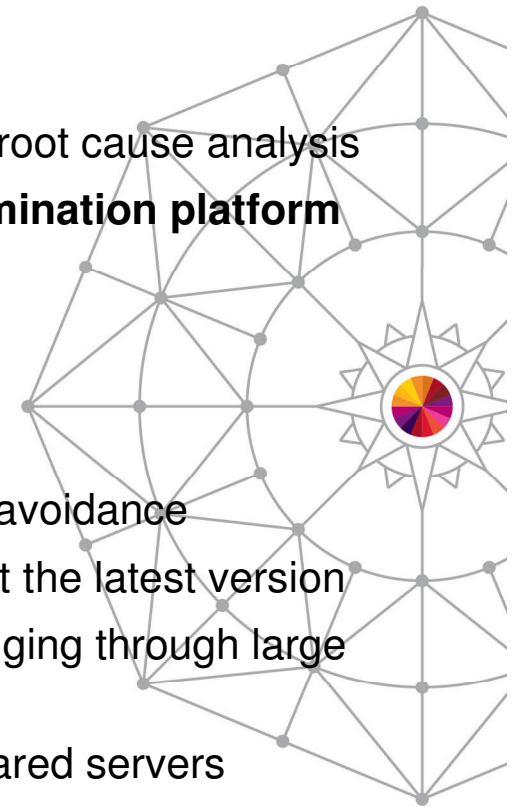


▪ What is IBM Support Assistant 5?

- Application targeted toward users responsible for diagnostics and root cause analysis
- A long-range strategy to produce a **collaborative problem determination platform**
- A **convergence** and **next generation** of several tools

▪ Benefit Focus areas

- **Cost avoidance** through reduction in time to resolution and PMR avoidance
- **Saves time** installing/updating client software: click “refresh” to get the latest version
- **Saves time, ensures completeness and consistency** when trudging through large volumes of diagnostic data to find that “needle in a haystack”
- **Saves desktop resources** by off-loading heavyweight tools to shared servers
- **Saves time** communicating with customers and collaborating between Support Engineers

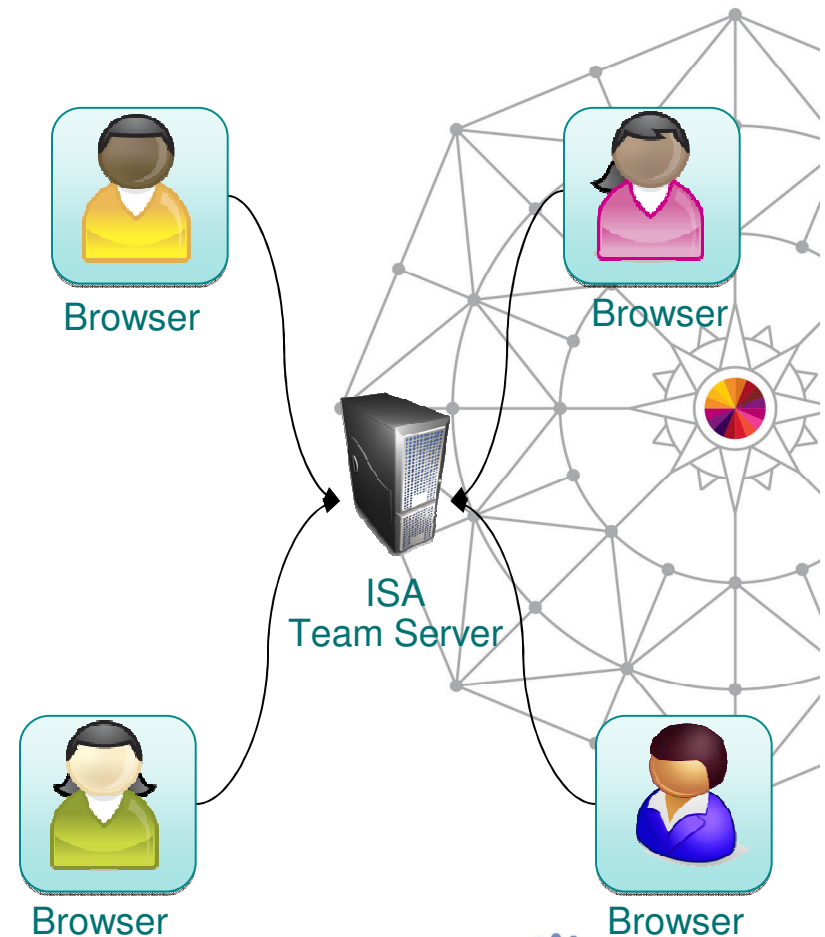


IBM Support Assistant 5 Strategy



ISA 5.0 Team Server

- Server-based model
- Install once - shared by many team members via browser
- Web 2.0 browser interface
- Remote execution of PD tools
- Off-load analysis processing
- Collaboration on PD
- Case Management
- Tool Management
- Single-user option available



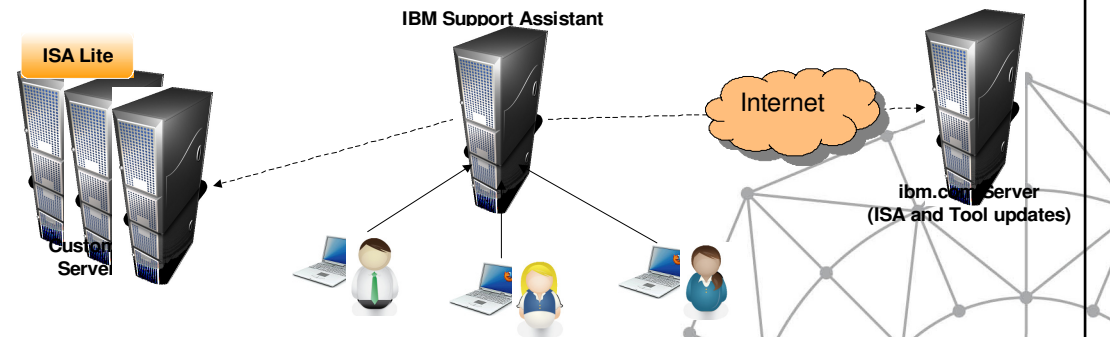
Complete your session evaluations online at www.SHARE.org/Anaheim-Eval

Available at www.ibm.com/software/support/isa

IBM Support Assistant 5.0 – Deployment options

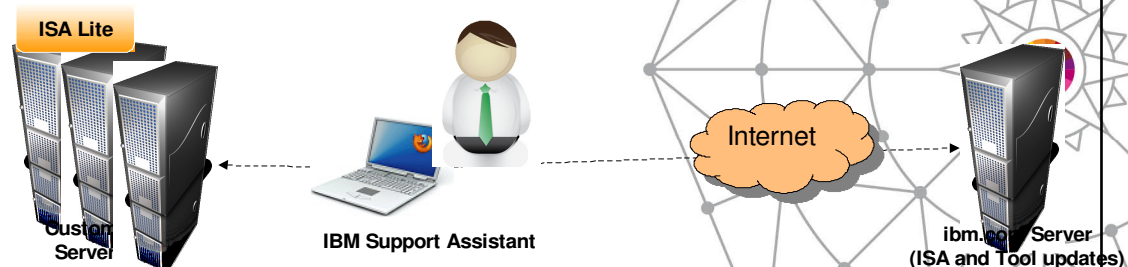
Team Server

- Single install
- Multiple end users
- Leverages resources of ISA server system
- Shared investigation



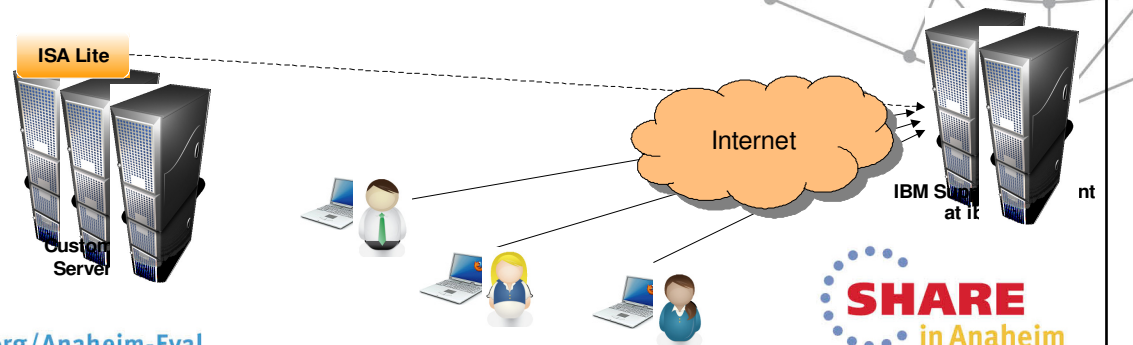
Standalone

- Single user
- Local install
- User administered



Cloud (future?)

- Zero install
- Multiple end users
- Leverages resources of ISA at ibm.com
- Shared investigation

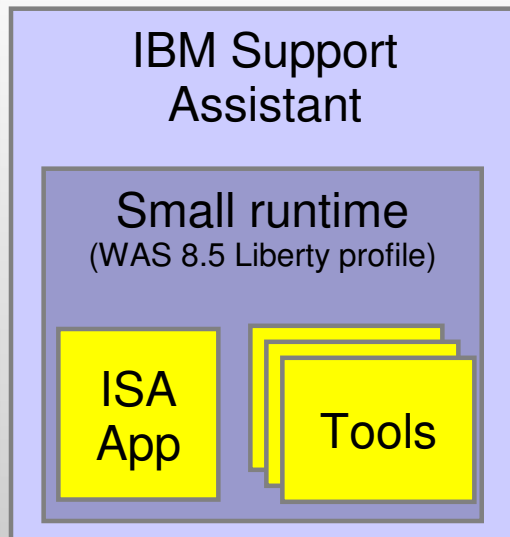


IBM Support Assistant 5.0 – Installation options

Installation Manager

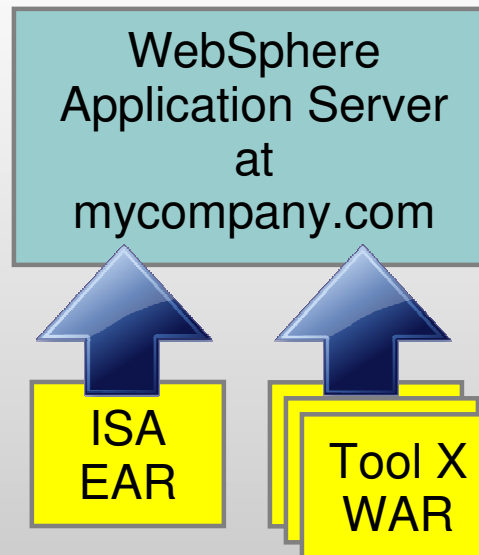
Recommended

- *Managed install, uninstall and update*
- *Selective install of tools*
- *All-in-one solution – includes lightweight runtime*



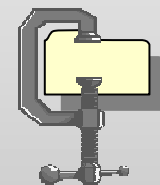
optional

- EAR:*
- *Deploy into existing Application Server*
 - *Tools deployed as JEE web modules*



Compressed zip

- *Easy startup*
- *Unzip and go*
- *All tools included*
- *No update capabilities*



Case Management

Simplified organization



IBM Support Assistant Team Server

Administration ¹⁸ Language ? IBM

Case Management

Add Delete

Case ID	Summary
0000	Example Case
0001	Memory leak - HCRApp03

Case ID: [New] ☒ ☐

Summary: Customers of the Plants by WebSphere app report timeouts

Description:

The timeouts are occurring when adding items to shopping carts.

Need to generate java snapshots and analyze the application threads.

Knowledge

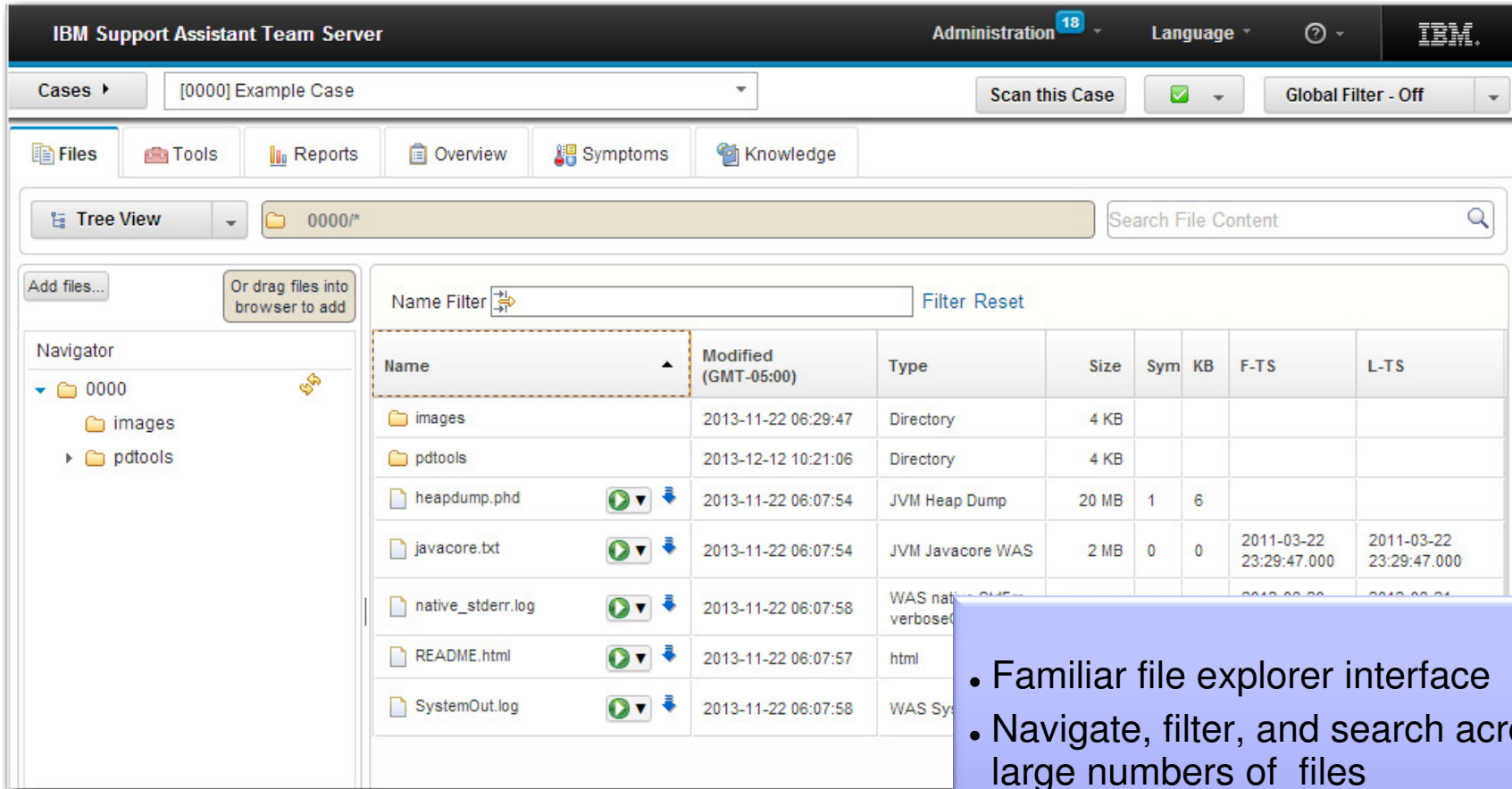
Search File Content

Filter Reset

Modified (GMT-05:00)	Type	Size	Sym	KB	F-TS	L-TS
2013-11-22 05:44:16	Directory	4 KB				
2013-11-22 16:21:00	Directory	4 KB				
2013-11-22 06:30:26	Directory	4 KB				
2013-11-22 05:44:16						

- Basic problem record capabilities
- Describe and capture notes about a symptom
- Container to organizer problem determination efforts
- Share investigation with other team members

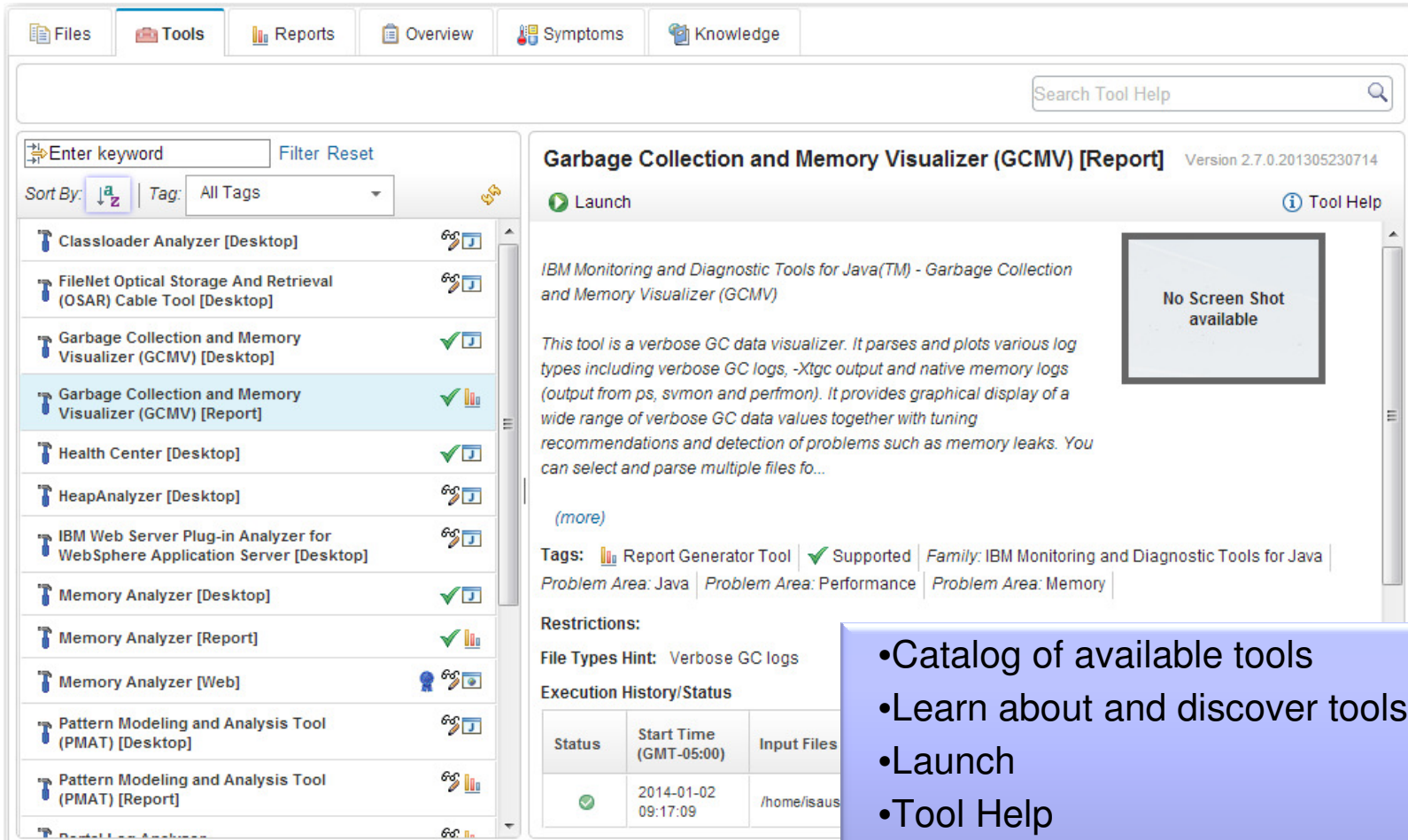
File Management and File Actions



The screenshot shows the IBM Support Assistant Team Server interface. At the top, there's a navigation bar with 'Administration' (18) and 'Language'. Below it, a 'Cases' dropdown shows '[0000] Example Case' with a 'Scan this Case' button and a 'Global Filter - Off' dropdown. The main area has tabs for 'Files', 'Tools', 'Reports', 'Overview', 'Symptoms', and 'Knowledge'. The 'Files' tab is active, showing a 'Tree View' of the file system. On the left, a 'Navigator' pane shows a tree structure with '0000' expanded, containing 'images' and 'pdtools' folders. The main pane shows a list of files and directories with columns: Name, Modified (GMT-05:00), Type, Size, Sym, KB, F-TS, and L-TS. The files listed are 'images' (Directory, 4 KB), 'pdtools' (Directory, 4 KB), 'heapdump.phd' (JVM Heap Dump, 20 MB), 'javacore.txt' (JVM Javacore WAS, 2 MB), 'native_stderr.log' (WAS native stderr, 2013-11-22 06:07:58), 'README.html' (html, 2013-11-22 06:07:57), and 'SystemOut.log' (WAS Sys, 2013-11-22 06:07:58). Each file has a green play button and a blue download arrow icon next to it. A 'Name Filter' and 'Filter Reset' button are at the top of the file list.

- Familiar file explorer interface
- Navigate, filter, and search across large numbers of files
- Invoke common actions against files and directories
- Easy upload and transfer

Tools – Toolbox



Garbage Collection and Memory Visualizer (GCMV) [Report] Version 2.7.0.201305230714

[Launch](#) [Tool Help](#)

IBM Monitoring and Diagnostic Tools for Java(TM) - Garbage Collection and Memory Visualizer (GCMV)

This tool is a verbose GC data visualizer. It parses and plots various log types including verbose GC logs, -Xtgc output and native memory logs (output from ps, svmon and perfmon). It provides graphical display of a wide range of verbose GC data values together with tuning recommendations and detection of problems such as memory leaks. You can select and parse multiple files fo...

(more)

Tags: Report Generator Tool Supported Family: IBM Monitoring and Diagnostic Tools for Java Problem Area: Java Problem Area: Performance Problem Area: Memory

Restrictions:

File Types Hint: Verbose GC logs

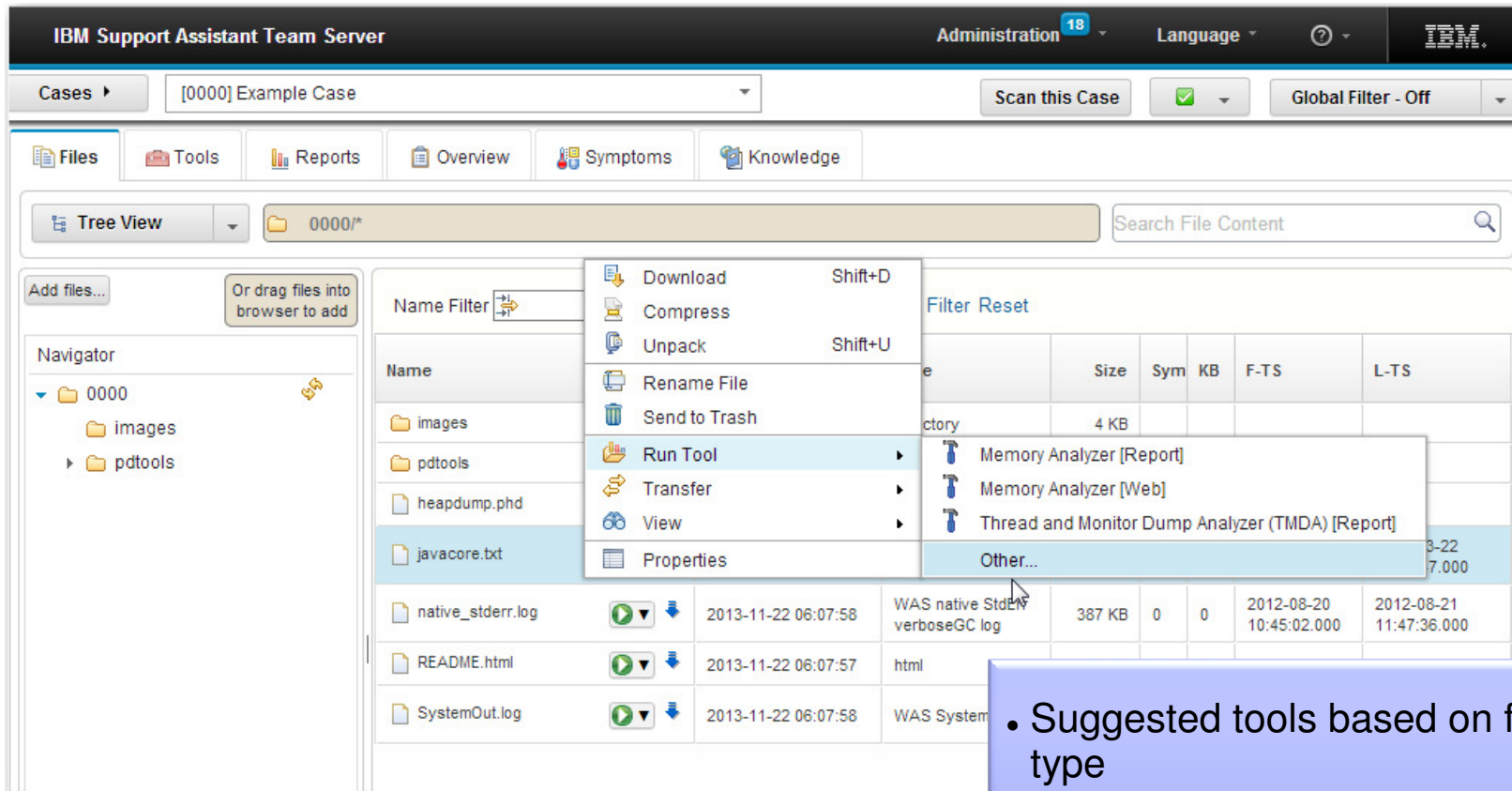
Execution History/Status

Status	Start Time (GMT-05:00)	Input Files
	2014-01-02 09:17:09	/home/isa...

- Catalog of available tools
- Learn about and discover tools
- Launch
- Tool Help
- Execution History



Files – Launch tools

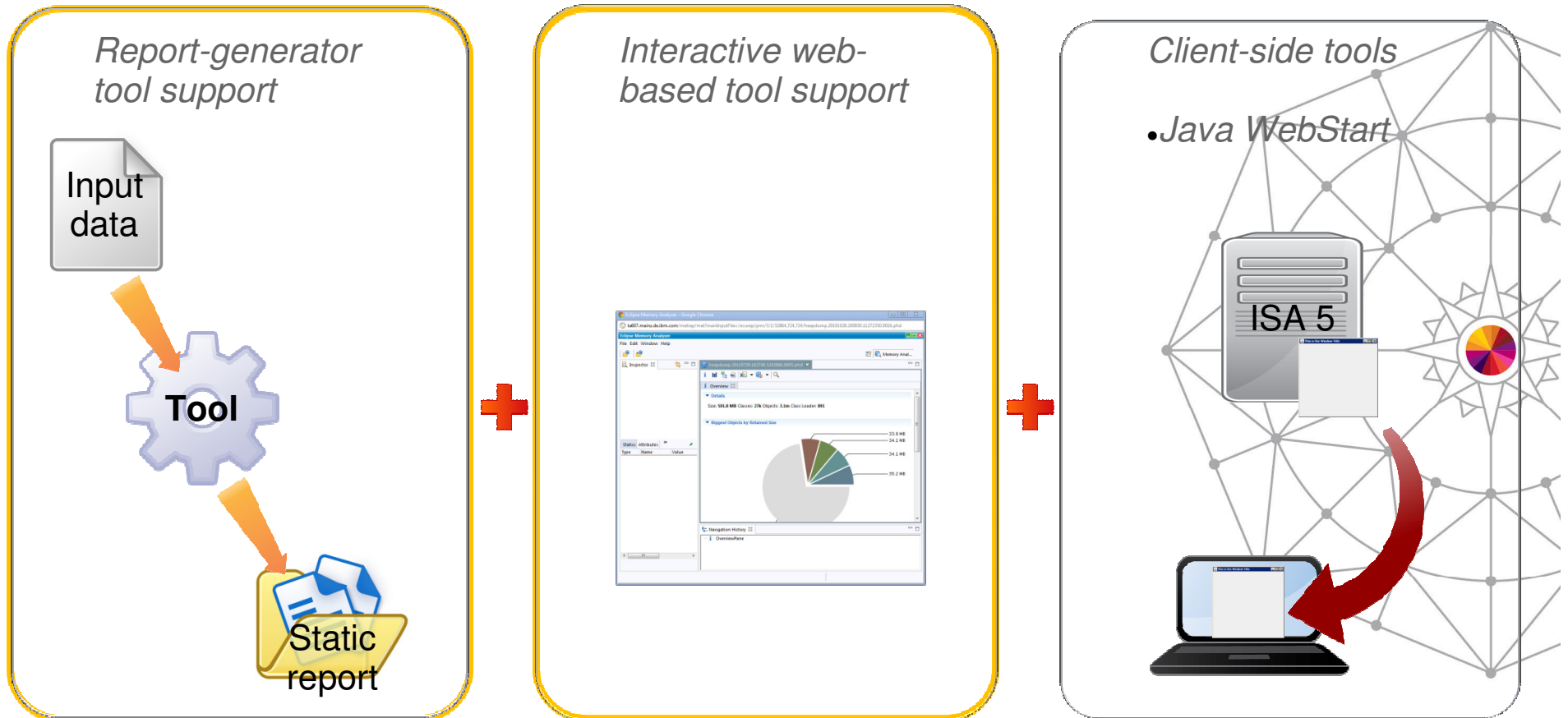


Name	Size	Sym	KB	F-TS	L-TS
factory	4 KB				
native_stderr.log	387 KB	0	0	2012-08-20 10:45:02.000	2012-08-21 11:47:36.000
README.html					
SystemOut.log					

- Suggested tools based on file type
- Automatically pass files to a tool
- All tools available from the “Other...” menu



ISA 5 - Tools



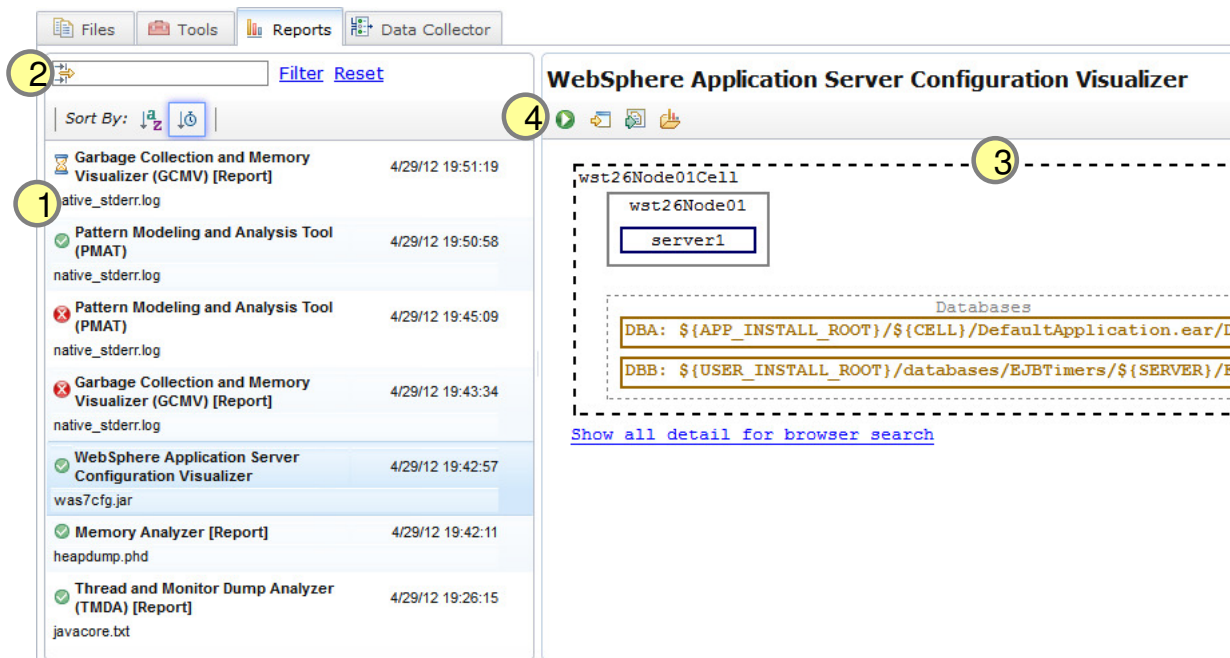
Strategic direction

Complete your session evaluations online at www.SHARE.org/Anaheim-Eval

Tooling Platform – Reports View

The Reports Tab provides a single view into all reports generated by tools within a case

- 1) Full list of reports
- 2) Filter and sort to easily locate reports
- 3) View reports directly in IBM Support Assistant
- 4) Relaunch tools and navigate directly to the report's input and output



WebSphere Application Server Configuration Visualizer

Wst26Node01Cell

Wst26Node01

server1

Databases

DBA: \${APP_INSTALL_ROOT}/\${CELL}/DefaultApplication.ear/De

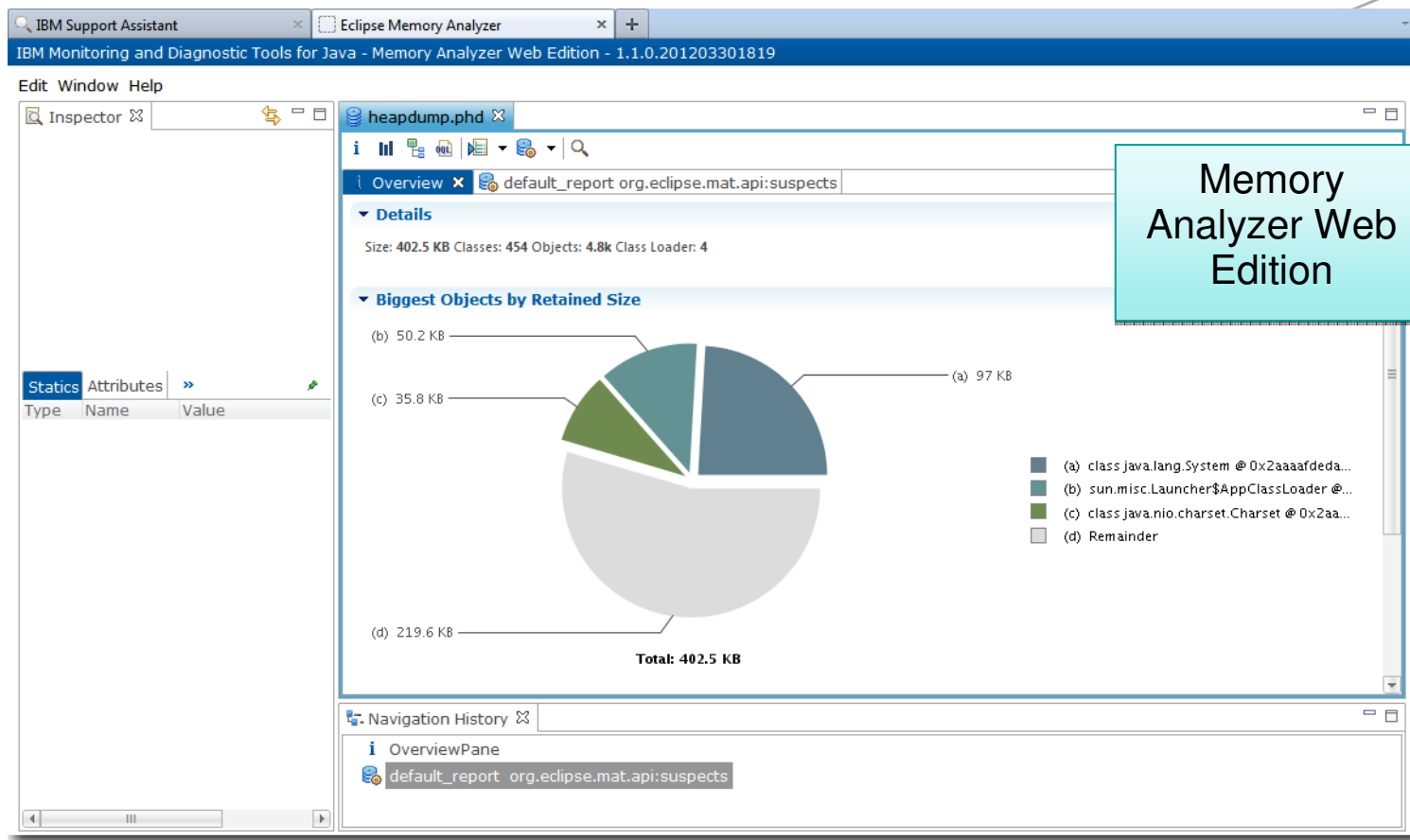
DBB: \${USER_INSTALL_ROOT}/databases/EJBTimers/\${SERVER}/EJ

[Show all detail for browser search](#)

- Garbage Collection and Memory Visualizer
- Memory Analyzer
- Pattern Modeling and Analysis Tool
- Portal Log Analyzer
- Profile Port Checker
- Thread and Monitor Dump Analyzer
- WebSphere Application Server Configuration Visualizer

Web-based Tool Support

Tool processing runs on the server and the rich, interactive UI runs in the browser



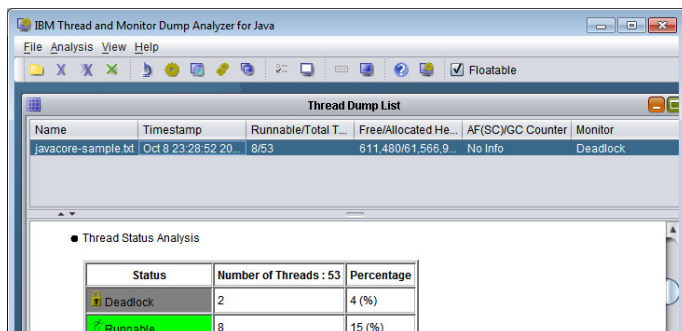
Memory
Analyzer Web
Edition



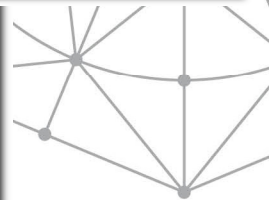
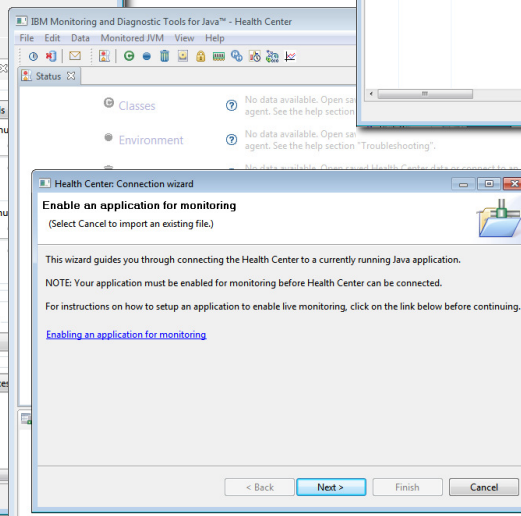
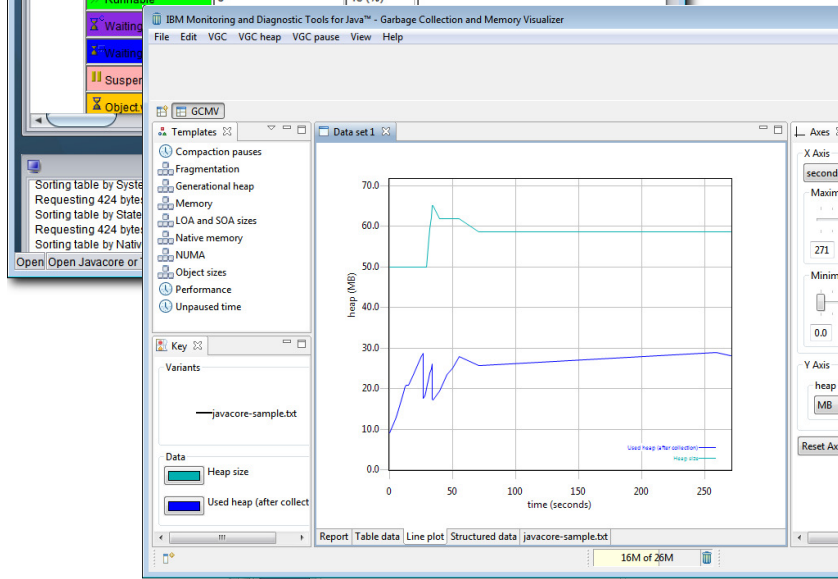
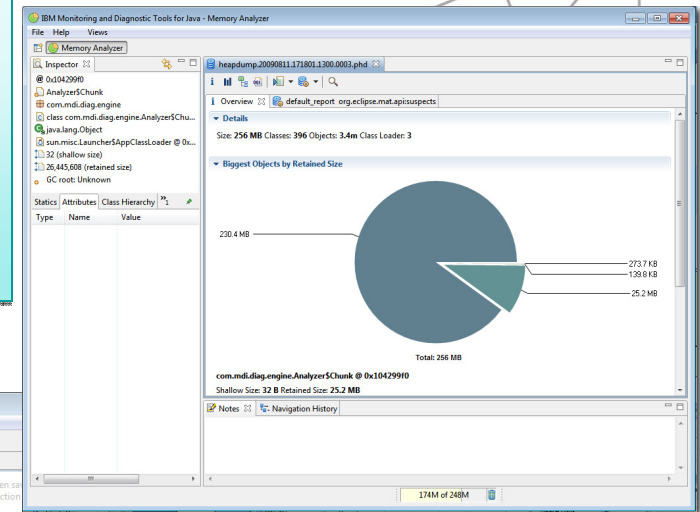
Desktop Tool Support



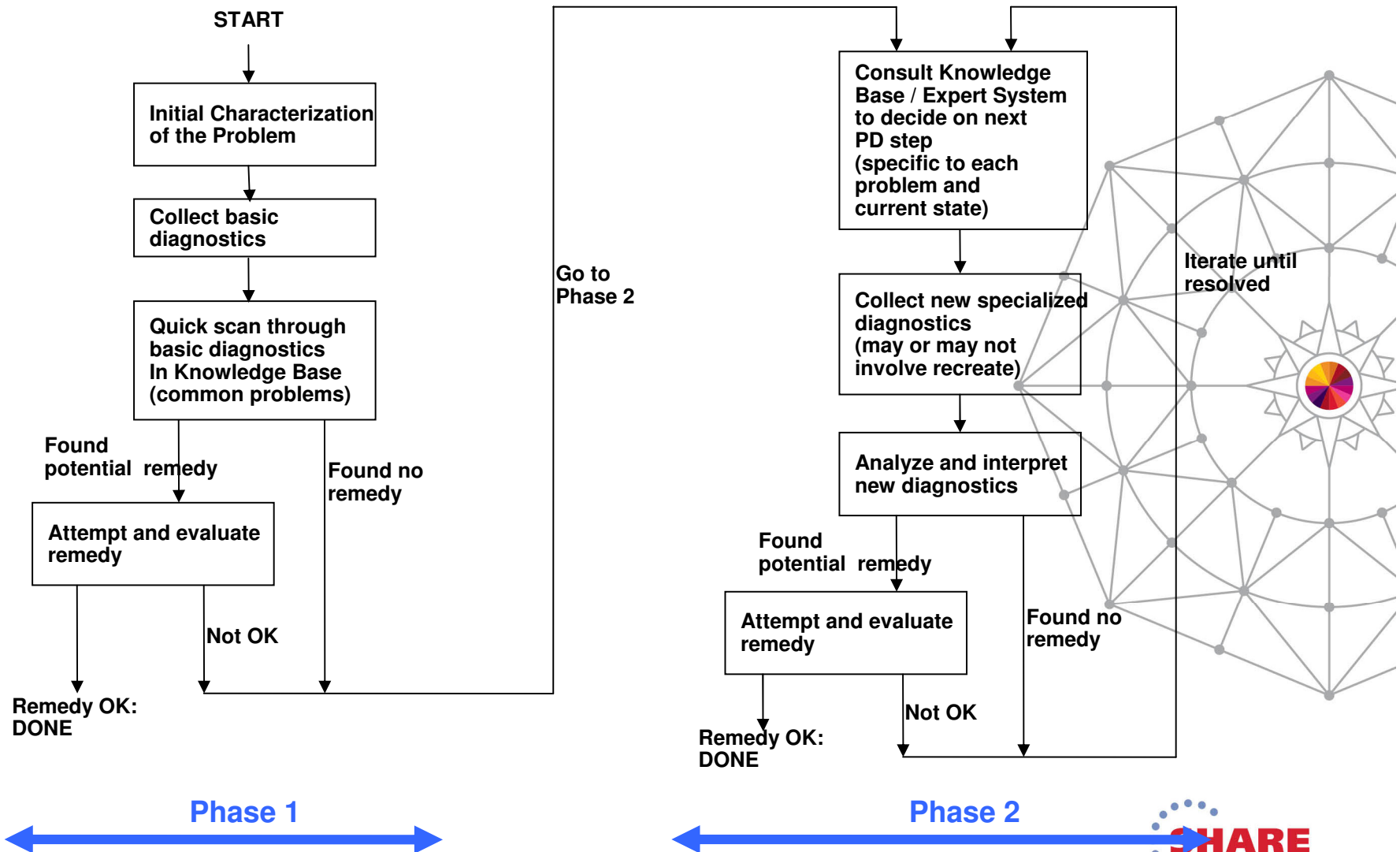
Client tools can be launched directly from the browser in IBM Support Assistant through Java WebStart



- Garbage Collection and Memory Visualizer
- Health Center
- Memory Analyzer
- Thread and Monitor Dump Analyzer



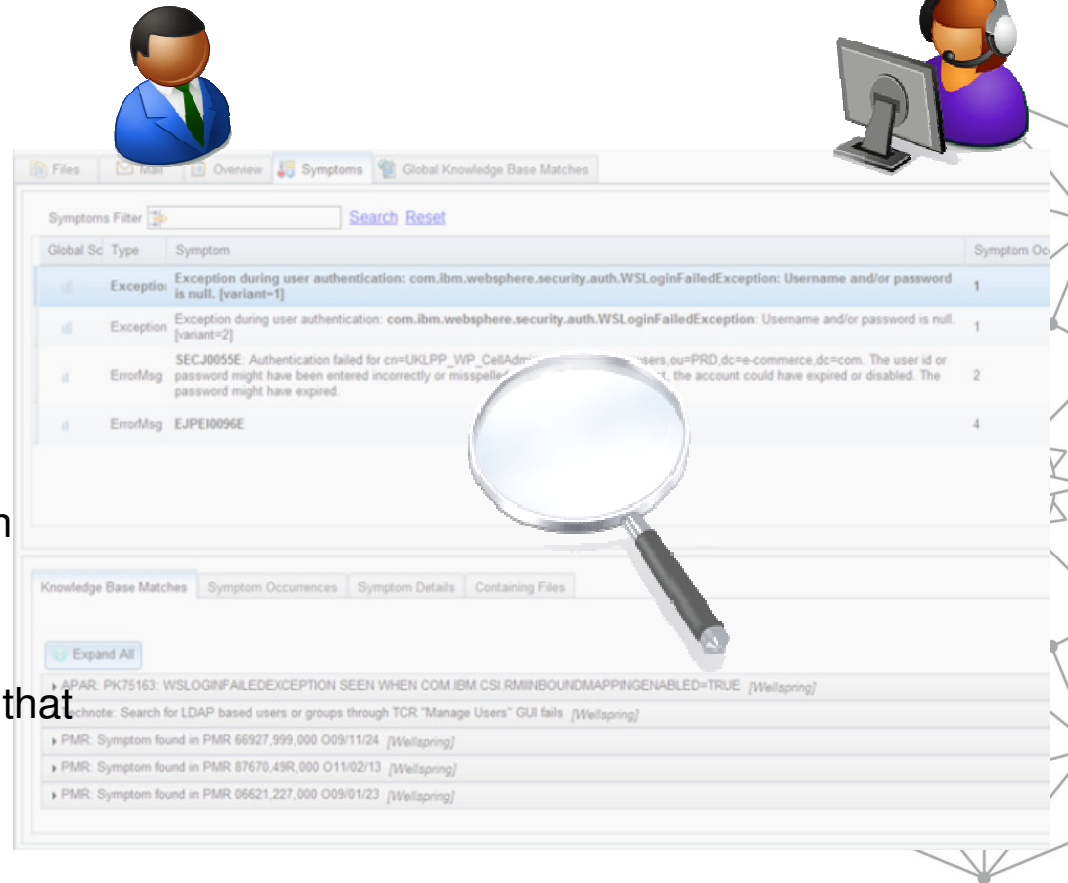
“Solve a Problem” Flow – Big picture



Automated Analysis (phase 1)



- Common tasks performed during a “first look”
 - Scan logs and other files looking for anomalies – “What stands out?”
 - Mentally rank symptoms
 - Use keywords to search known repositories
 - Review search hits and decide which seem “most likely”
- IBM Support Assistant automates steps that would probably be done by hand
 - Faster
 - More thorough
- Simplify the process of getting to root cause



Enhanced Files View

IBM Support Assistant Team Server Administration 18 Language ? IBM

Cases [0000] Example Case Scan this Case Global Filter - Off

Files Tools Reports Overview Symptoms Knowledge

Tree View 0000/* Search File Content

Add files... Or drag files into browser to add

Navigator

- 0000
 - images
 - pdtools

Name Filter Filter Reset

Name	Modified (GMT-05:00)	Type	Size	Sym	KB	F-TS	L-TS
javacore.txt	2013-11-22 06:07:54	JVM Javacore WAS	2 MB	0	0	23:29:47.000	23:29:47.000
native_stderr.log	2013-11-22 06:07:58	WAS native StdErr verboseGC log	387 KB	0	0	2012-08-20 10:45:02.000	2012-08-21 11:47:36.000
README.html	2013-11-22 06:07:57	html	16 KB	0	0		
SystemOut.log	2013-11-22 06:07:58	WAS SystemOut log	66 KB	12	80	2010-06-08 14:54:52.500	2010-06-08 15:03:00.812

/SystemOut.log

Collapse All

General Information

Last modified: 2013-11-22 06:07:58 GMT-05:00
 First time stamp: 2010-06-08 14:54:52.500
 Last time stamp: 2010-06-08 15:03:00.812
 Size: 66 KB
 File Type (logical): WAS SystemOut log
 Knowledge base matches: 80
 Symptom occurrences: 12

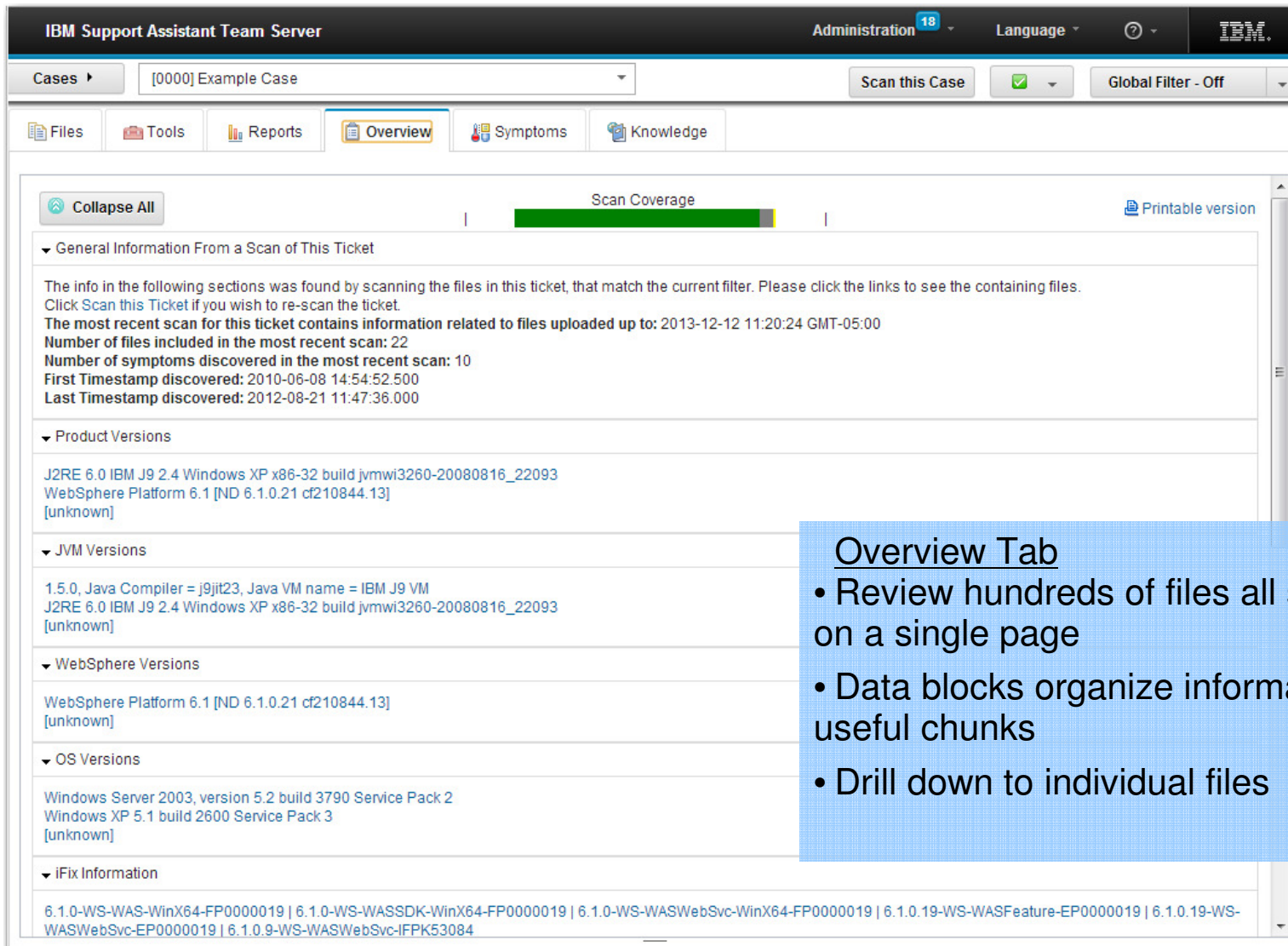
Server Information

Host name: [unknown]
 Server name: bullisCell02/bullisNode02/server1
 Composite server name: name=bullisCell02/bullisNode02/server1 | host=[unknown] | pid=4296 | start time=06/08/10 13:54:52
 Server process ID: 4296
 Trace specifications

Files Tab

- Review details discovered in a file without opening the file
- Quickly identify time spans covered in a file
- See symptoms and KB Matches for a file at a glance

Automated Analysis – Overview



IBM Support Assistant Team Server

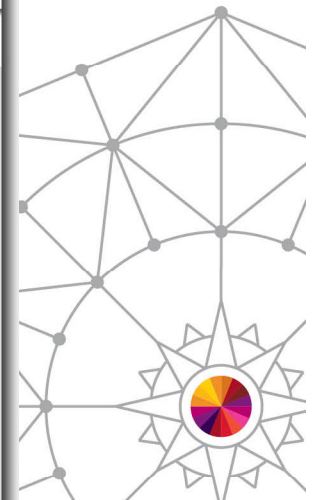
Administration 18 Language ? IBM

Cases ▾ [0000] Example Case Scan this Case [✓] Global Filter - Off ▾

Files Tools Reports **Overview** Symptoms Knowledge

Overview Tab

- Review hundreds of files all summarized on a single page
- Data blocks organize information into useful chunks
- Drill down to individual files



Automated Analysis – Symptoms

IBM Support Assistant Team Server Administration 18 Language ? IBM.

Cases ▾ [0000] Example Case Scan this Case [x] Global Filter - Off

Files Tools Reports Overview Symptoms Knowledge

Symptoms Filter [Enter keyword] Filter Reset Scan Coverage Showing 10 of 10 results [x] Show All

Global Score	Type	Symptom	Symptom Occurrences	Knowledge Base Matches	First Occurrence Timestamp	Last Occurrence Timestamp	ID
	ErrorMsg	SRVE0255E: A WebGroup/Virtual Host to handle /favicon.ico has not been defined.	2	10	2010-06-08 15:02:18.843	2010-06-08 15:02:21.843	11
	ErrorMsg	HMGR0028E: A duplicate DCS_UNICAST_ADDRESS port has been detected. Members bullisCell02\bullisNode02\nodeagent and bullisCell02\bullisNode02\server2 on host bullis.austin.ibm.com are both configured to use port 9356.	1	9	2010-06-08 14:54:57.000	2010-06-08 14:54:57.000	3
	ErrorMsg	SECJ0350E: Could not get the uniqeld of the user samples.	1	10	2010-06-08 14:55:05.515	2010-06-08 14:55:05.515	4
	ErrorMsg	SECJ0340E: Could not get the uniqeld for the group sampadmn.	1	10	2010-06-08 14:55:05.609	2010-06-08 14:55:05.609	5
	AdHoc	CWZZZ0002E: One or more heapdumps have been found. This may be an indication	1				

Knowledge Base Matches Symptom Occurrences Symptom Details Containing Files

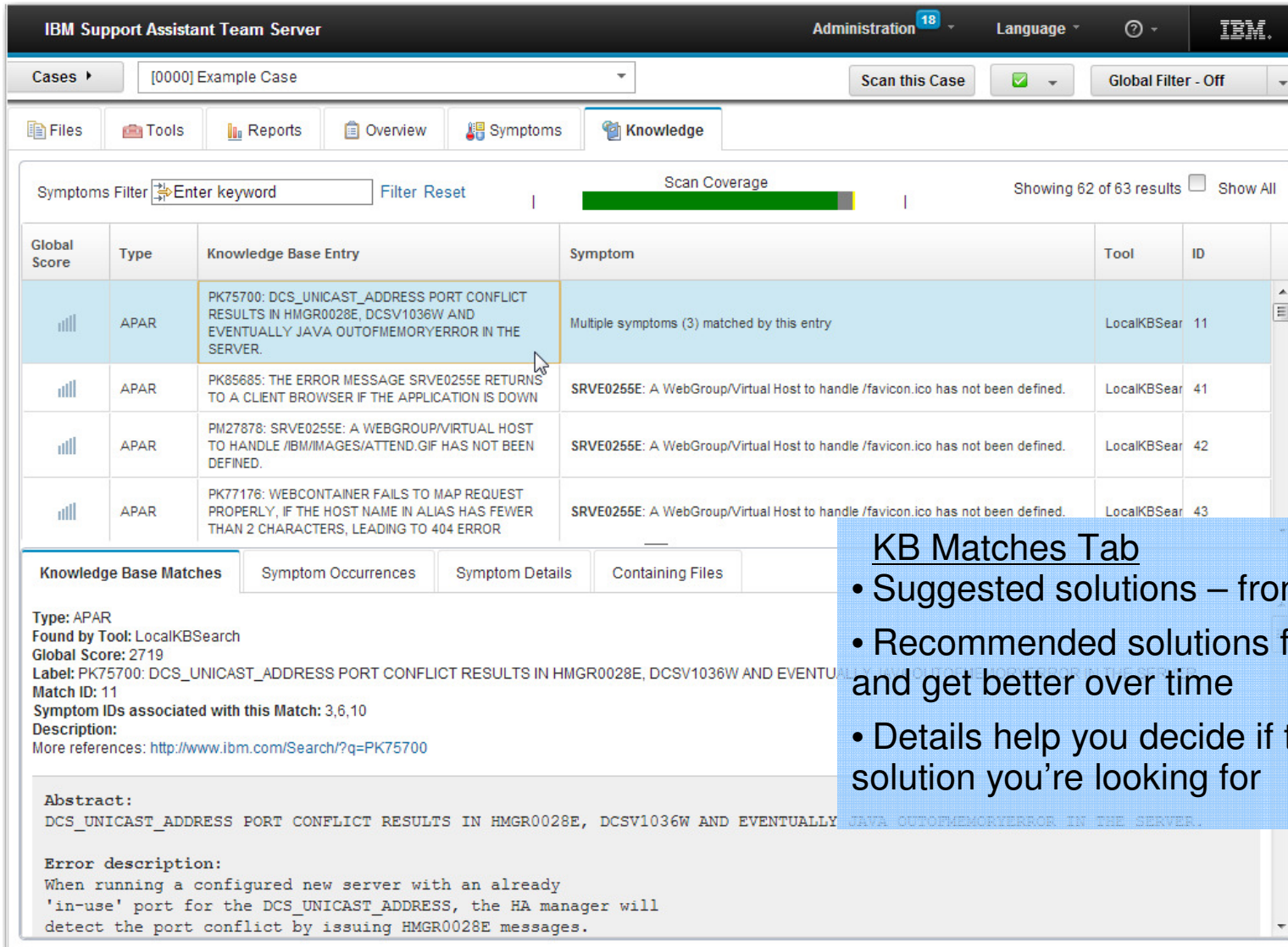
Expand All

- ▶ APAR: PK85685: THE ERROR MESSAGE SRVE0255E RETURNS TO A CLIENT BROWSER IF THE APPLICATION...
- ▶ APAR: PM27878: SRVE0255E: A WEBGROUP/VIRTUAL HOST TO HANDLE /IBM/IMAGES/ATTEND.GIF HAS NOT...
- ▶ APAR: PK77176: WEBCONTAINER FAILS TO MAP REQUEST PROPERLY, IF THE HOST NAME IN ALIAS HAS FEWER THAN 2 CHARACTERS, LEADING TO 404 ERROR [LocalKBSearch]
- ▶ APAR: PK65519: ADMINISTRATIVE CONSOLE SHOULD SUPPORT ENTRY OF [] BRACKETS AROUND IPV6 ADDRESS [LocalKBSearch]
- ▶ APAR: PM79295: DYNAMIC CLUSTER NOT BEING DISPLAYED CORRECTLY IN ADMINISTRATIVE CONSOLE [LocalKBSearch]
- ▶ APAR: PM42174: AFTER MIGRATING TO V7, ERROR MESSAGE SRVE0255E WHEN ACCESSING THE ADMINISTRATIVE CONSOLE. [LocalKBSearch]
- ▶ APAR: PM27845: PLUGIN THINKS APPLICATION SERVER IS DOWN WHEN USING EXTENDED HANDSHAKE TO TRUE IN THE PLUGIN.CFG.XML [LocalKBSearch]

Symptoms Tab

- Extracted symptoms are displayed in an ordered list, ready for your inspection...
- Symptom information helps you determine which candidate you should investigate first
- Solution recommendations are matched to the selected symptom

Automated Analysis – Knowledge Base Matches



The screenshot shows the IBM Support Assistant Team Server interface. The top navigation bar includes 'Cases', 'Administration', 'Language', and 'IBM'. The 'Cases' dropdown shows '[0000] Example Case'. The 'Scan this Case' button is green and active. The 'Global Filter' is set to 'Off'. The 'Knowledge' tab is selected in the main navigation bar. Below the navigation bar, there is a 'Symptoms Filter' section with a search bar and a 'Filter Reset' button. A 'Scan Coverage' progress bar is shown. The main table displays search results with columns: Global Score, Type, Knowledge Base Entry, Symptom, Tool, and ID. The first row is highlighted, showing a match for 'Multiple symptoms (3) matched by this entry'. Below the table, the 'Knowledge Base Matches' tab is selected, showing details for the selected match, including the type (APAR), tool (LocalKBSearch), global score (2719), label, match ID, symptom IDs, description, and abstract.

Global Score	Type	Knowledge Base Entry	Symptom	Tool	ID
	APAR	PK75700: DCS_UNICAST_ADDRESS PORT CONFLICT RESULTS IN HMGR0028E, DCSV1036W AND EVENTUALLY JAVA OUTFOMEMORYERROR IN THE SERVER.	Multiple symptoms (3) matched by this entry	LocalKBSearch	11
	APAR	PK85685: THE ERROR MESSAGE SRVE0255E RETURNS TO A CLIENT BROWSER IF THE APPLICATION IS DOWN	SRVE0255E: A WebGroup/Virtual Host to handle /favicon.ico has not been defined.	LocalKBSearch	41
	APAR	PM27878: SRVE0255E: A WEBGROUP/VIRTUAL HOST TO HANDLE /IBM/IMAGES/ATTEND.GIF HAS NOT BEEN DEFINED.	SRVE0255E: A WebGroup/Virtual Host to handle /favicon.ico has not been defined.	LocalKBSearch	42
	APAR	PK77176: WEBCONTAINER FAILS TO MAP REQUEST PROPERLY, IF THE HOST NAME IN ALIAS HAS FEWER THAN 2 CHARACTERS, LEADING TO 404 ERROR	SRVE0255E: A WebGroup/Virtual Host to handle /favicon.ico has not been defined.	LocalKBSearch	43

Knowledge Base Matches

Type: APAR
Found by Tool: LocalKBSearch
Global Score: 2719
Label: PK75700: DCS_UNICAST_ADDRESS PORT CONFLICT RESULTS IN HMGR0028E, DCSV1036W AND EVENTUALLY
Match ID: 11
Symptom IDs associated with this Match: 3,6,10
Description:
More references: <http://www.ibm.com/Search/?q=PK75700>

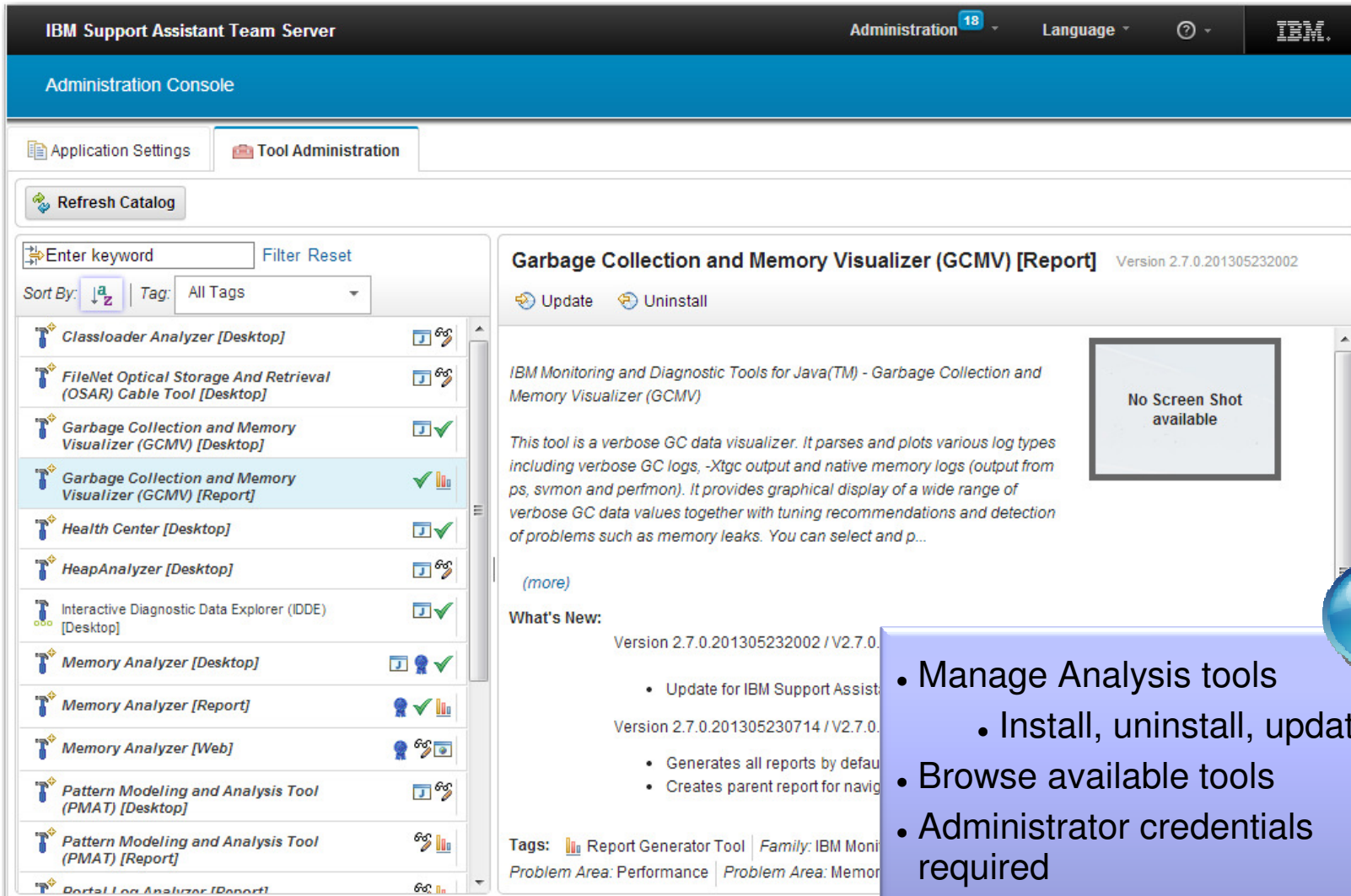
Abstract:
DCS_UNICAST_ADDRESS PORT CONFLICT RESULTS IN HMGR0028E, DCSV1036W AND EVENTUALLY JAVA OUTFOMEMORYERROR IN THE SERVER.

Error description:
When running a configured new server with an already 'in-use' port for the DCS_UNICAST_ADDRESS, the HA manager will detect the port conflict by issuing HMGR0028E messages.

KB Matches Tab

- Suggested solutions – front and center
- Recommended solutions float to the top and get better over time
- Details help you decide if this is the solution you're looking for

Tool Administration



IBM Support Assistant Team Server Administration 18 Language ? IBM

Administration Console

Application Settings Tool Administration

Refresh Catalog

Enter keyword Filter Reset

Sort By: [a-z] Tag: All Tags

Classloader Analyzer [Desktop]

FileNet Optical Storage And Retrieval (OSAR) Cable Tool [Desktop]

Garbage Collection and Memory Visualizer (GCMV) [Desktop]

Garbage Collection and Memory Visualizer (GCMV) [Report]

Health Center [Desktop]

HeapAnalyzer [Desktop]

Interactive Diagnostic Data Explorer (IDDE) [Desktop]

Memory Analyzer [Desktop]

Memory Analyzer [Report]

Memory Analyzer [Web]

Pattern Modeling and Analysis Tool (PMAT) [Desktop]

Pattern Modeling and Analysis Tool (PMAT) [Report]

Portal Log Analyzer [Report]

Garbage Collection and Memory Visualizer (GCMV) [Report] Version 2.7.0.201305232002

Update Uninstall

IBM Monitoring and Diagnostic Tools for Java(TM) - Garbage Collection and Memory Visualizer (GCMV)

No Screen Shot available

This tool is a verbose GC data visualizer. It parses and plots various log types including verbose GC logs, -Xtgc output and native memory logs (output from ps, svmon and perfmon). It provides graphical display of a wide range of verbose GC data values together with tuning recommendations and detection of problems such as memory leaks. You can select and p...

(more)

What's New:

Version 2.7.0.201305232002 / V2.7.0.

- Update for IBM Support Assist

Version 2.7.0.201305230714 / V2.7.0.

- Generates all reports by default
- Creates parent report for navig

Tags: Report Generator Tool Family: IBM Moni Problem Area: Performance Problem Area: Memor

- Manage Analysis tools
 - Install, uninstall, update
- Browse available tools
- Administrator credentials required



User Assistance



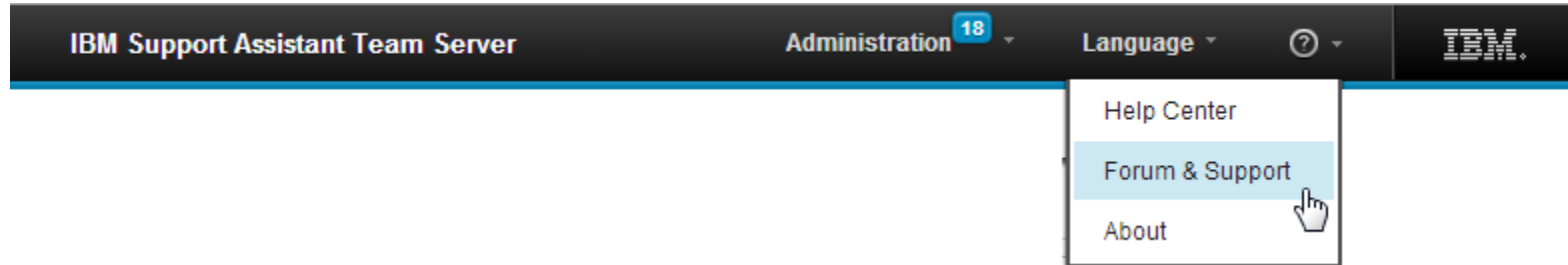
Help System

- Documentation available from banner
- Search Tool help from Tools tab
- Searchable Knowledge Center

The screenshot displays the IBM Knowledge Center interface for the IBM Support Assistant 5.0.0. The top navigation bar includes links for Administration, Language, and Help Center. The Help Center dropdown menu is open, showing options for Help Center, Forum & Support, and About. The main content area features a welcome message for the IBM Support Assistant Team Server V5.0 documentation, along with sections for Getting started, Common tasks, and Troubleshooting and support. The sidebar on the left contains a Table of Contents and a search bar.

SHARE
in Anaheim

Contact Information



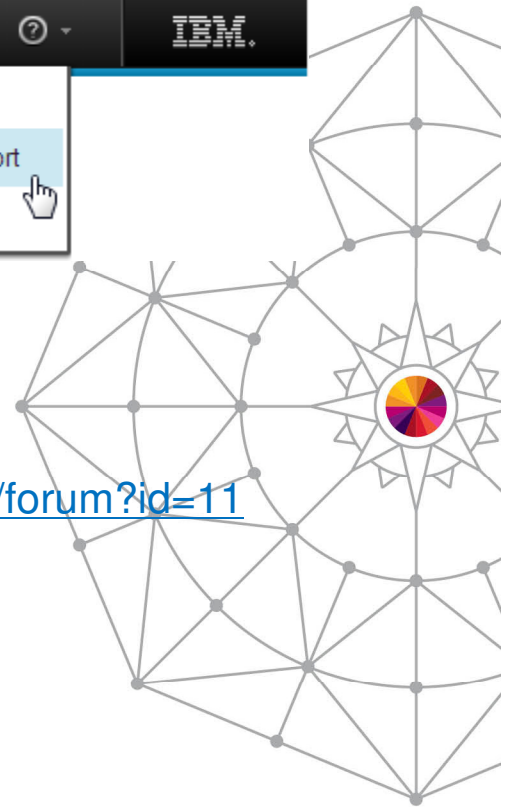
**Need support or have questions
about Team Server?**

Visit our forum:

<https://www.ibm.com/developerworks/community/forums/html/forum?id=111111-0000-0000-0000-000000000935>

IBM Support Assistant web page

<http://www.ibm.com/software/support/isa>

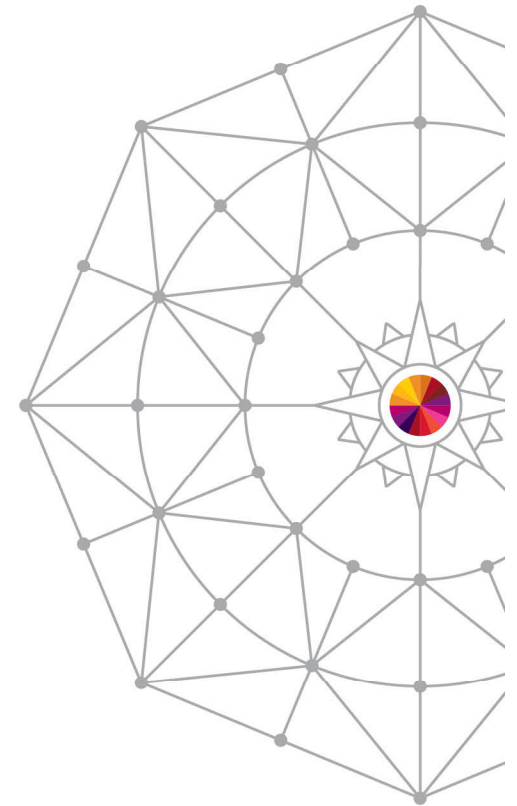


Complete your session evaluations online at www.SHARE.org/Anaheim-Eval

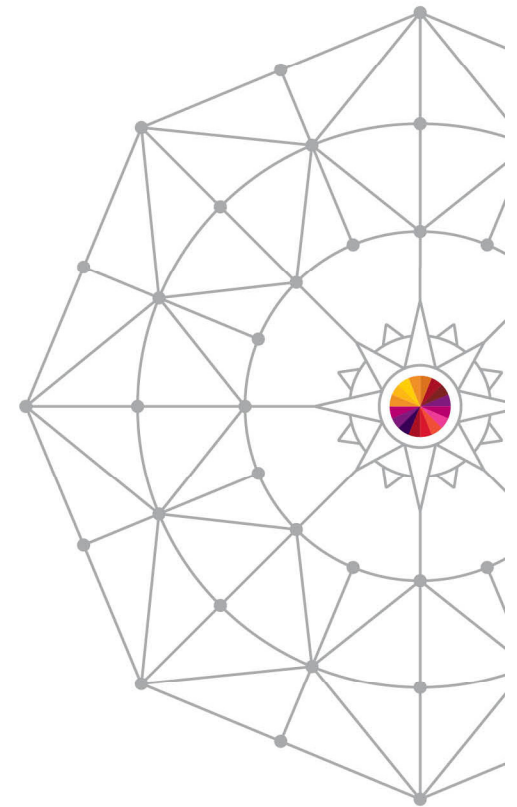
Thank you



**Questions
or
Comments**



Backup Slides



40 Complete your session evaluations online at www.SHARE.org/Anaheim-Eval

Education

- Many problems can be resolved or avoided by ensuring that the Users have the opportunity to learn the appropriate skills
- But Education is hard to deliver efficiently – who has time to go through thousands of hours of education materials on every subject that can possibly be useful to them

Hence we need a rich a flexible set of education channels to suit each User's needs

- Education is necessary both for a general range of topics about how to use various aspects of each product, but also specifically about how to perform Problem Determination tasks

Tools and Resources

Items

WebSphere Education Services

IBM Education Assistant (IEA)

Notes

Formal courses, both in-class and online, for a wide range of subjects. Typically for a fee.

Two courses of particular interest for Problem Determination:

- WebSphere Application Server Problem Determination (WU582)
- WebSphere Process Server Problem Determination (WB225)

Online, easy-to-consume, small granular education materials on common questions and problems encountered by Customers. Available for free.

Some of the contents of the WAS Problem Determination course above are also available in IEA for self-study.

Accessible directly through the web, or through the *Media Viewer* tool in ISA (allows offline viewing)

Tools and Resources (continued)

Items

WebSphere Support Technical Exchange

IBM developerWorks

Support Authority column on developerWorks

IBM Redbooks

Notes

Ongoing series of webcasts on topics of interest for WebSphere Support

Ongoing series of articles on all technical topics, published through the web

Semi-monthly column on topics of interest for WebSphere Support

Published as part of the WebSphere Technical Journal

Extensive collection of books and papers, written by IBM experts

Reference Information

- The investigation of most problems involves finding the appropriate information in a global *knowledge base* containing instructions about how to troubleshoot each specific problem, and entries about specific known issues and APARs

Tools and Resources (continued)

Items

Search engine on the eSupport web sites/portal

Notes

Searches through a broad range of online resources, including Information Centers, Technotes, APAR database, developerWorks, Redbooks, forums, ...
Results can be filtered by type and product, and organized in tabs for different types of results.

Product Information Centers

The primary reference documentation for each product.
Most Information Centers contain a section on troubleshooting tools and techniques for the associated product..
Searchable directly or through the eSupport web sites/portal or through ISA.

Technotes and related documents

Collection of notes on known issues, APARs, troubleshooting tips, how-to's. Stored in association with each product's eSupport web site/portal
Managed by the IBM Support Engineers and Knowledge Engineers.
Most products have a special collection of Technotes with instructions on how to troubleshoot each type of problem: *MustGather* and *Troubleshooting Documents*.

Diagnostic Guides

Some products (e.g. IBM Java) have a special *Diagnostic Guide* document, or other forms of troubleshooting guides.

Complete your session evaluations online at www.SHARE.org/Anaheim-Eval

Reference Information



Tools and Resources

Items

Automated search during the automated analysis in ISA 5.0 *(New)*

Search function in ISA 4.1 *(Phasing out)*

Product Information function in ISA 4.1 *(Phasing out)*

IBM Guided Troubleshooter, a.k.a. IBM Guided Activity Assistant (IGAA) *(Phasing out)*

Notes

While performing automated analysis, ISA 5.0 automatically performs a number of standardized searches in a custom Knowledge Base derived from Technotes, APARs, etc.

Contains a search engine that aggregates (and filters) results from many sources (similar to the eSupport web sites/portal, but with additional configurable search targets)

Results are organized according to the set of product add-ons installed in the user's ISA workbench

A set of links and RSS feeds for recommended information sources for each product add-on configured in the workbench.

Provides step-by-step guidance while performing many troubleshooting tasks.

Contains many “flows” for common problems in several products

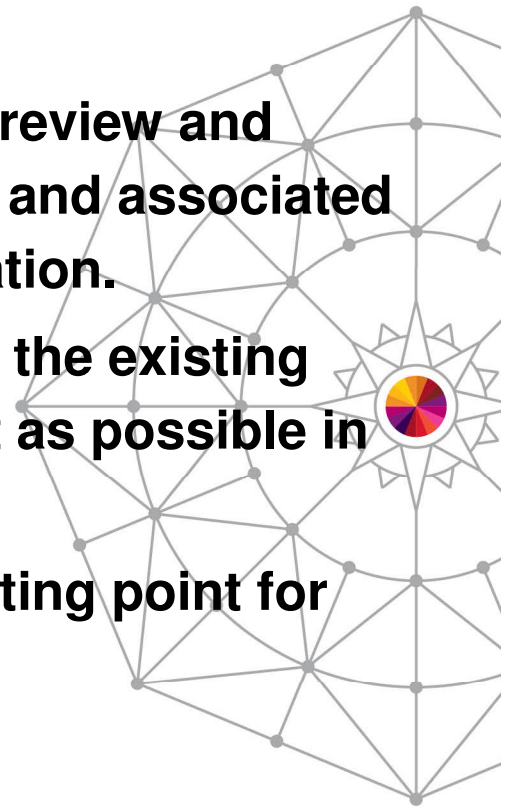
Integrated in ISA



Operational Preparation



- Preparation is at least 50% of the battle: define, review and enhance a complete set of procedures to follow and associated resources to use to facilitate problem determination.
- Focus initially on how to best take advantage of the existing tools and techniques, and how to be as efficient as possible in problem determination.
- Several published articles can be used as a starting point for this activity:



Operational Preparation

Special Activities (continued)

Items

Prepare a detailed **Architecture Diagram**

Prepare a **Diagnostic Data Collection Plan**

Prepare a **Monitoring Plan**

Prepare a **Relief and Recovery Plan**

Prepare a **Maintenance Plan**

Collect **baselines** of all major diagnostic data sources

Document the most likely **failure scenarios** and the diagnostic collection and analysis procedure for each

Maintain a **Change Log** of all significant changes in the environment

Notes

Used to identify key monitoring and diagnostic points, to communicate effectively during troubleshooting, and to help identify unexpected changes in configuration.

To avoid loss of time and loss of information when a problem does occur.

Take advantage of automated data collection facilities in ISA.

To effectively detect problems as soon as they occurs, or preferably while they are still emerging

For mission-critical systems, to minimize down-time when a problem occurs

To minimize disruptions and problems due to delayed or improper maintenance

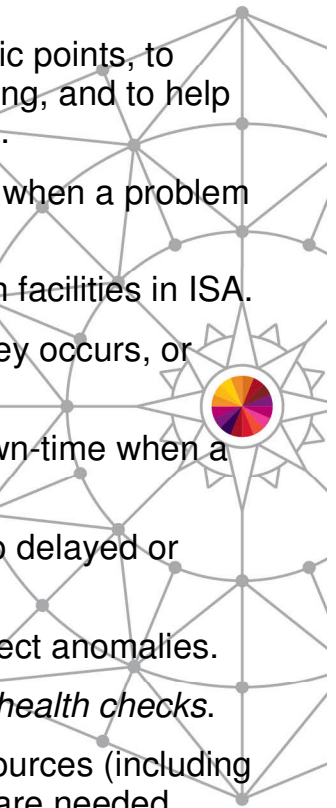
To compare when a problem occurs and detect anomalies.

May be part of a regular practice to perform *health checks*.

To ensure that the necessary diagnostic resources (including tools and knowledge) are ready before they are needed

To prevent or help diagnose newly-emerged problems.

Perform regular checks to ensure the change log remains current.



Collecting Diagnostic Data

- Most troubleshooting scenarios consist of one or more iterations of collecting diagnostic data from a failed system then analyzing that data
- IBM Support has formalized this process and the set of diagnostic data to be collected for each of many types of problems that occur with each product
- The standardized set of collected diagnostic data is an important part of the exchange of information when working with IBM Support to resolve a PMR, and also when using the procedures and tools developed by IBM Support in a self-help situation at the Client's site

Tools and Resources

Items

MustGather documents

ISA Lite / ISA Data Collector – downloadable edition

ISA Data Collector – Web-enabled edition *(New)*

ISA Data Collectors bundled with products *(New)*

Notes

A collection of special Technotes, each describing the exact set of diagnostics to collect for one particular problem type in one particular product.

An alternative for using the same automated data collections scripts provided with ISA 4.1, but without requiring the installation of an agent on each remote system. The user must run the ISA DC tool manually on each target system.

Similar to the downloadable ISA Lite, but run directly as an applet from a browser, without explicit download and installation.

Available in ISA 5.0 and directly from the ISA web page on ibm.com/support/isa

More and more, the ISA DC or other sophisticated data collectors are bundled with the individual products to which they apply

(for example in <was-install>/bin/isadc.bat or isadc.sh

Collecting Diagnostic Data



Tools and Resources (continued)

Items

Automated data collection function in ISA 4.1 (*Phasing out*)

ECuRep file repository

Case Manager function in ISA

IBM Java Diagnostic Collector Tool

Notes

ISA includes a collection of collection scripts that correspond to many of the most common MustGathers for each product

Each script performs all the necessary actions with minimal user intervention, and packages the result as a jar file that can be sent directly to IBM Support, or analyzed locally.

The ISA workbench can connect to an agent on each system in the Client's environment to collect the data from a remote system.

A special repository hosted by IBM, to which Clients upload their diagnostic artifacts in connection with a PMR (normally via FTP)

IBM Support has special tools to facilitate the management and analysis of artifacts on this repository.

A function in ISA to help keep track and manage the various diagnostic artifacts collected during a troubleshooting sessions.

Includes the capability to easily examine the contents of collection archive files created by the automated data collection facilities.

A special utility that can be installed with a IBM JDK to facilitate the generation and collection of diagnostics when that JDK crashes.



Complete your session evaluations online at www.SHARE.org/Anaheim-Eval

Collecting Diagnostic Data

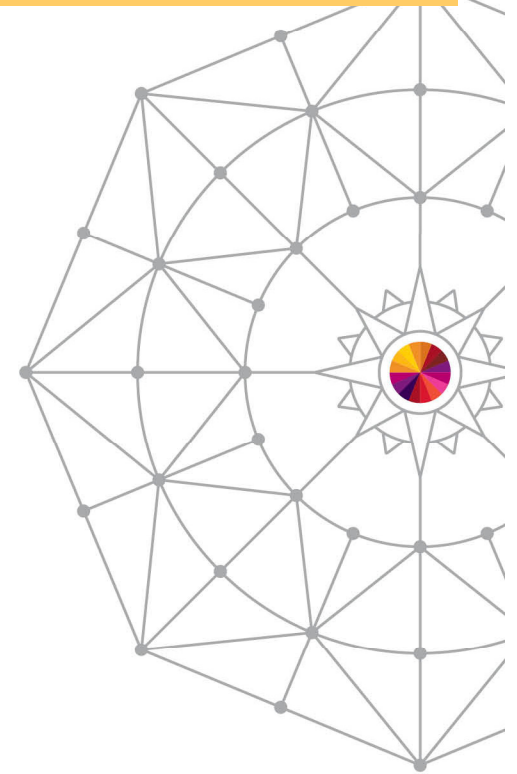


Special Activities

Items

Create specialized collection scripts customized for the Client's environment

Notes



High-level log analysis and “Phase 1 Problem Determination”

- A very substantial fraction of all problems encountered by Customers are relatively readily identifiable by examining logs and recognizing a key symptom in a database of known problems
- We have defined a process called “Phase 1 PD” to take advantage of this situation

Runtime Features

Items

Standard logs, dumps and config files from each product

Notes

Tools and Resources

Items

Automated analysis in ISA 5.0 *(New)*

Server Logs Viewer in WebSphere Application Server admin console (including HPEL viewer) *(New)*

Cross Component Trace Viewer (XCT) *(New)*

Log Analyzer (LA) and Symptom Databases *(Phasing out)*

Server Logs Viewer in WebSphere Integration Developer

Notes

ISA 5.0 contains a feature to perform a scan of all the files present in a ISA case and flag many anomalies found in these files

The WSAS admin console contains various functions to view and filter through the server logs

Can be used to quickly scan through multiple logs and highlight high-severity errors (ignoring of the full trace analysis functions)

Consolidates and visualizes many logs from many products. Easily flag anomalies within the large quantity of log data.

Can be used to quickly scan WPS logs for exceptions and errors (the core of Phase 1 PD)

Working with Java and WebSphere Trace

Tools and Resources

Items

Cross Component Trace Viewer (XCT) *(New)*

IBM Trace and Request Analyzer

IBM Database Connection Pool Analyzer

Trace Analyzer for WebSphere Application Server

Server Logs Viewer in WebSphere Integration Developer

Notes

Viewer for cross-component trace (XCT)

Specialized tool for analysis of delays in request processing

Specialized tool for analysis of problems related to the WebSphere connection pool

General-purpose tool to facilitate sophisticated trace analysis by experts

Currently used for WPS only.
Viewer for cross-component trace (XCT)

Special Activities

Items

Document the process for diagnosing common problems in the Client's environment from examination of traces

Write specialized trace analysis scripts for common problems

Notes

Collect baseline traces during normal operation for comparison

Working with Java and WebSphere Dumps

- **Dump analysis is complementary to trace analysis; it focuses on taking a snapshot of the state of system, and trying to determine if anything is abnormal and how we got to that state.**
- **There are many different types of “dumps”, with varying degrees of completeness and cost**

Runtime Features

Items

Javacore / thread dumps

Heap dumps

System dumps / svcdump

Diagnostic Tooling Framework for Java (DTFJ)

WebSphere Diagnostic Providers (*Phasing out*)

Notes

Most common JVM artifact; simple text file with most commonly-used information. No detailed information about individual objects.

Special dump used to diagnose memory conditions; smaller than system dump but less complete information

Most expensive but most comprehensive dump; an effort is underway to standardize on this type of dump for most cases.

Runtime support and API for producing and analyzing system dumps from a JVM

Provides specialized dumps, tests of individual components

Working with Java and WebSphere Dumps

Tools and Resources

Items

IBM Thread and Monitor Dump Analyzer (TMDA)

Memory Analyzer (MA or MAT)

Heap Analyzer (HA)

Interactive Diagnostic Data Explorer (IDDE) *(New)*

Dump Analyzer (DA) *(Phasing out)*

WebSphere Application Server modules for Dump Analyzer, Memory Analyzer and/or IDDE *(New)*

IBM Whole-system Analysis of Idle Time Tool (WAIT) *(New)*

Memory Dump Diagnostic for Java (MDD4J) / Yeti *(Phasing out)*

Notes

Analyzes javacores/thread dumps

Expert tool for analyzing heap dumps and system dumps, with special focus on issues related to memory usage

Analyzes heap dumps, with strong heuristics for memory leaks

Expert tool for analyzing system dumps; lighter-weight and more extensible than Memory Analyzer

Analyzes system dumps; extensible collection of analysis modules to diagnose different problems.

Specialized modules to examine WSAS-level information

Cloud-based tool for analyzing a sequence of javacores, with special emphasis on performance issues

Analyzes heap dumps; positioned as tool for non-experts..

Special Activities

Items

Promote and organize the systematic collection of dumps during incidents

Implement specialized modules for Memory Analyzer or IDDE for the Client's environment

Complete your session evaluations online at www.SHARE.org/Anaheim-Eval

Notes

Working with WebSphere Performance Sensors

- Performance sensors are not typically thought of for problem determination, but they can be used to detect various anomalies that are important clues for diagnostics

Runtime Features

Items

Performance Monitoring Infrastructure (PMI)
Advanced Request Metrics
WebSphere Runtime Performance Advisor

Notes

Many sensors/counters for key performance indicators
Allows fine-grained tracing of the progress of a transaction
Dynamically monitors PMI metrics and warns of anomalies

Tools and Resources

Items

Tivoli Performance Viewer

Performance Tuning Toolkit (PTT) *(New)*

Advanced Tivoli tooling, esp. ITCAM
Monitoring/health facilities in WS VE, XS

Notes

Basic viewer for PMI data
Embedded in the WebSphere Admin Console
Advanced viewer for PMI data; can perform live monitoring and alerting and guide tuning activities
Sophisticated analysis of PMI and ARM data

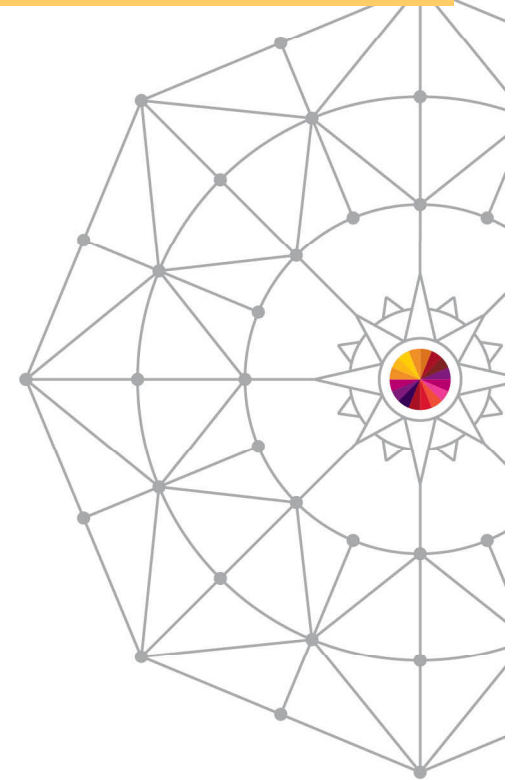
Working with WebSphere Performance Sensors

Special Activities

Items

Collect baselines and review PMI sensors during normal operation, to help recognize common problems

Notes



Using “pings” for Monitoring and Diagnostics

- **Most troubleshooting techniques are based on observing and extracting information that already exists in the system as part of its normal (or abnormal) operation.**
- **Another technique, which is used relatively rarely but which can be extremely powerful, consists of actively exercising parts of the system with known inputs to observe the resulting outputs.**
- For example, by injecting artificial requests at regular intervals, whose processing is completely predictable if the system is healthy. By observing how the actual processing of these requests happens, we can learn a lot about what is going on in the system.
- By carefully choosing different requests that each exercise only a portion of the overall system, we can also identify which portions of the system are currently healthy or un-healthy.

Runtime Features

Items

Advanced Request Metrics

Notes

Use primarily for performance, but can also be used in some cases for “ping” style health checks

Tools and Resources

Items

Tivoli tooling

Notes

Tivoli has a collection of tools that monitor systems through synthetic transactions

Ad-hoc scripts

Often, Clients implement their own ad-hoc “ping” scripts based on specific understanding of their particular system architecture

Using “pings” for Monitoring and Diagnostics

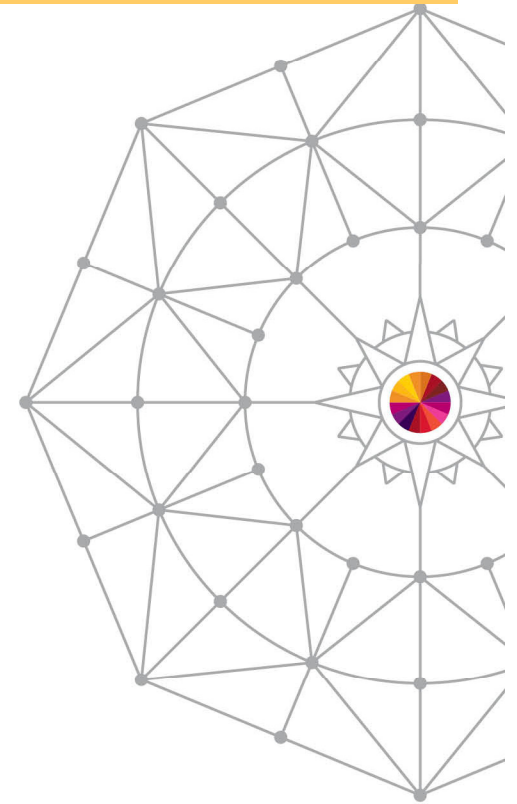


Special Activities

Items

Design and implement a collection of ad-hoc “ping” scripts for the Client’s environment

Notes



Specialized runtime features for common problems

- The WebSphere runtime is steadily being enhanced to include special diagnostics for common problems
- This type of feature makes it most easy to detect a particular problem, but they typically can only be implemented with new product releases, i.e. on a relatively long cycle

Runtime Features

Items

Database connection test function

Hung Thread Detection

Connection Leak Detection

Session data crossover detection

First Failure Data Capture (FFDC)

Classloader Viewer

Memory leak detection and protection *(New)*

... others ...

Notes

Simple function in the WebSphere Admin Console to test that a database connection is currently working

Notifies when threads have been unresponsive

Notifies when database connections are “leaked”

Runtime checks that warns when it appears that information is unintentionally “leaking” between two HTTP sessions

Captures information for all unexpected exceptions

Captures information about how classes are loaded in WebSphere

Viewer is embedded in the WebSphere Admin Console

Detect/fix common causes of leaks associated with app stop

WebSphere Application Server on System Z



Session	Title	Time	Room	Speaker
14618	Getting Started with WebSphere Liberty Profile on z/OS	Monday 9:30	Grand Ballroom Salon C	Loos/Follis
14692	Getting Started with WebSphere Compute Grid	Tuesday 9:30	Grand Ballroom Salon J	Hutchinson/Loos
14693	Using WebSphere Application Server Optimized Local Adapters (WOLA) to Migrate Your COBOL to zAAP-able Java	Wednesday 9:30	Grand Ballroom Salon K	David Follis
14620	WebSphere Liberty Profile on Windows AND z/OS (among other things) Hands-on Lab	Wednesday 1:30	Platinum Ballroom Salon 7	
14949	Tips Learned Implementing Websphere Application Server (WAS) on Linux for IBM System z	Wednesday 3:00	Grand Ballroom Salon G	Eberhard Pasch
14709	Need a Support Assistant? Check Out IBM's! (ISA)	Thursday 8:00	Grand Ballroom Salon A	Mike Stephen
15050	z/OSMF 2.1 Implementation and Configuration	Thursday 8:00	Grand Ballroom Salon G	Greg Daynes
14832	Web Apps using Liberty Profile Technology in CICS	Thursday 11:00	Platinum Ballroom Salon 2	Ian Mitchell
14722	Assimilating WebSphere Application Server into your z/OS WLM Configuration	Thursday 1:30	Orange County Salon 1	David Follis
15017	Using IBM WebSphere Application Server and IBM WebSphere MQ Together [z/OS & Distributed]	Thursday 3:00	Grand Ballroom Salon A	Ralph Bateman