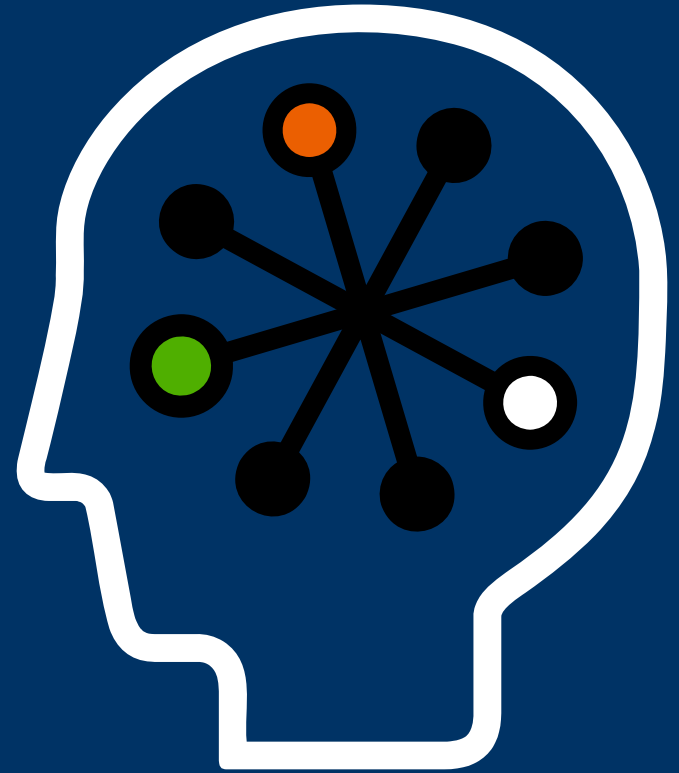


# HP-UX 11i v3 Knowledge-on- Demand

HP technical Webcast series:  
deployment optimization



# HP-UX 11i v3 Knowledge-on-Demand

- Objective: Support developers, deployment personnel and customers in achieving better business outcomes with HP-UX 11i
- What HP is providing: A series of technical on-demand training Webcasts
  - Focused on helping people who deploy HP-UX Integrity solutions increase performance through optimizing their installations for HP-UX 11i v3 on HP Integrity servers
  - Available at [www.hp.com/go/kod](http://www.hp.com/go/kod)

# HP-UX 11i v3 Knowledge-on-Demand webcasts – planned topics

- HP-UX 11i v3 operating system optimization
  - Dynamic nPartitions
  - HP-UX 11i v3 tunables
  - I/O optimization
  - System Management Homepage
  - Software Assistant
  - GlancePlus
  - Performance trouble-shooting on v3
- Optimizing high availability configurations
  - Serviceguard configuration and manageability
  - Configuring Serviceguard with Oracle RAC
  - Serviceguard delta training
- Optimizing virtualized configurations
  - Capacity advisor
  - Workload monitoring and management
  - System sizing with HP VM

Additional  
Webcasts to be  
published going  
forward!

Topics subject to change without notice.

# Related HP-UX 11i v3 resources

- All deployment resources
  - HP-UX 11i developers content  
[www.hp.com/go/hpuxdev](http://www.hp.com/go/hpuxdev)
  - HP-UX 11i v3 news, functionality, product download, and services resources  
[www.hp.com/go/hpux11i](http://www.hp.com/go/hpux11i)
  - HP Integrity server product information  
[www.hp.com/go/integrity](http://www.hp.com/go/integrity)

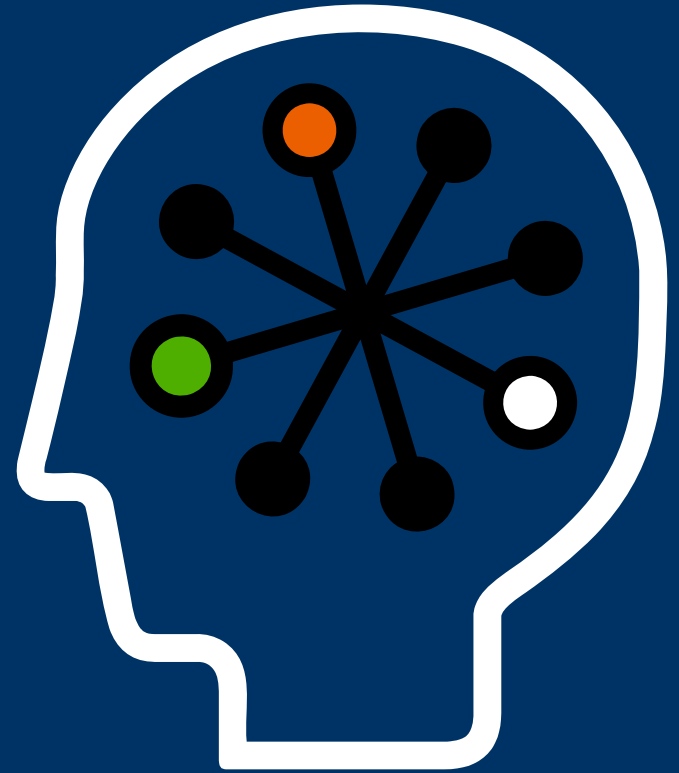
# We hope you enjoy this Knowledge-on-Demand topic!

Thank you for taking time to learn about HP-UX 11i v3 and related technologies.

Please provide feedback on today's topic and/or future topics by using our online HP-UX 11i Knowledge-on-Demand Feedback form:

[www.hp.com/go/kodfeedback](http://www.hp.com/go/kodfeedback)

# HP ARIES Technical overview



# Introducing the speaker

- Rajesh Kumar Chaurasia is a software architect with ARIES product team at HP STSD, Bangalore. Rajesh has been involved with ARIES product during design, development, verification and performance enhancement for the past 10 years.
- During this period Rajesh has helped many customers adopt ARIES to migrate HP 9000 applications to HP Integrity servers.



# What this presentation covers

- ARIES Technical overview
- ARIES Base features and advantages
- ARIES Supportability features
- ARIES Deployment: Items to consider
- ARIES Performance implications
- ARIES Limitations
- ARIES Options overview
- ARIES Latest releases and patches
- ARIES Robustness
- ARIES Support
- ARIES Customer testimonials
- ARIES Officially supported products
- ARIES HP products supported
- ARIES Resources

# HP ARIES

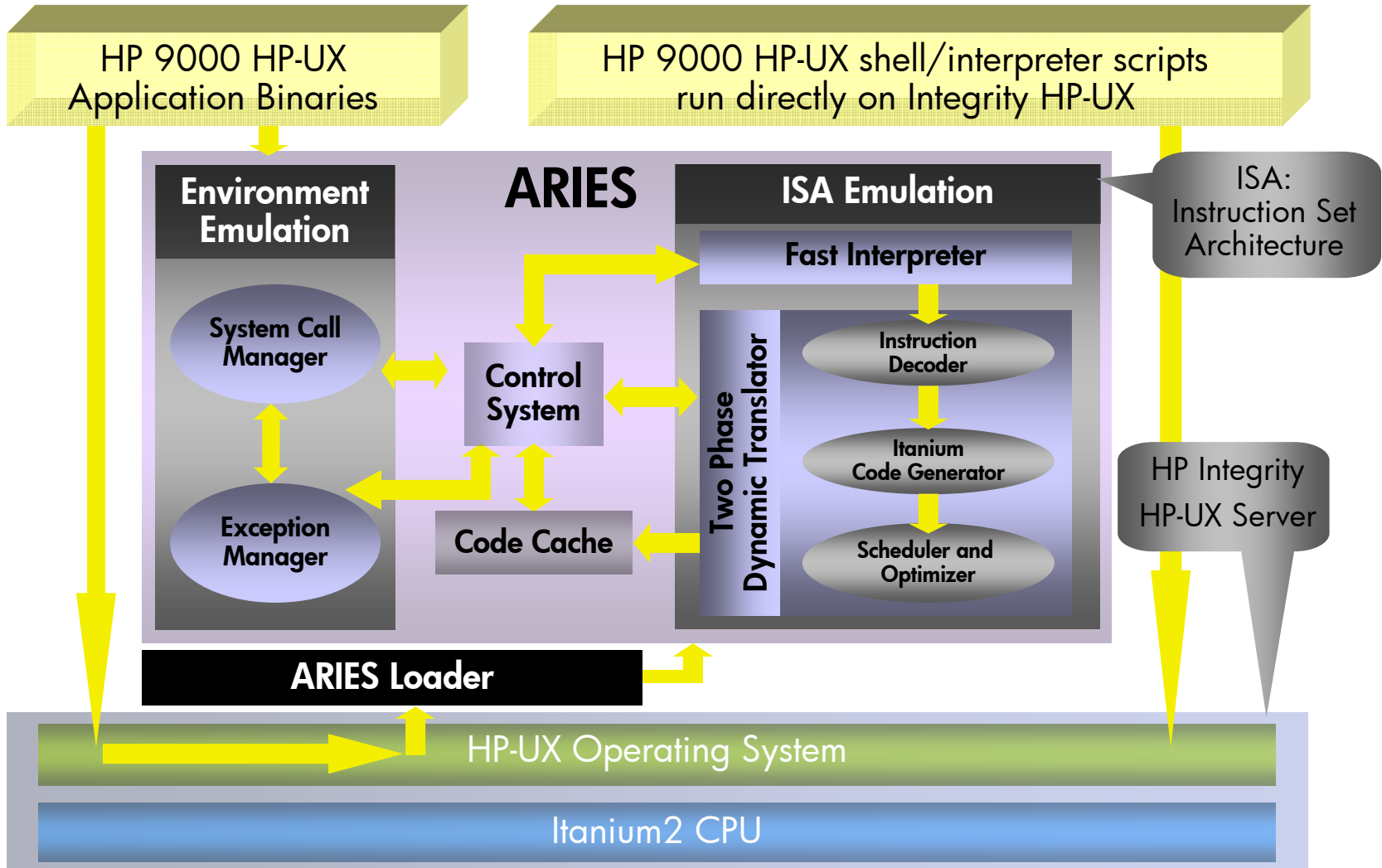
## Technical overview



# ARIES Technical overview

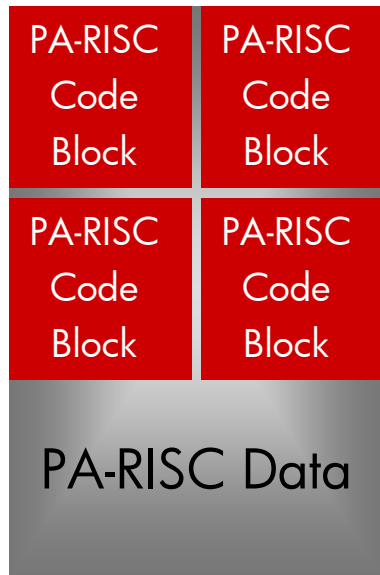
- ARIES: **A**utomatic **R**ecompilation & **I**ntegrated **E**nvironment **S**imulation
- ARIES is a dynamic binary translator which transparently executes 32-bit and 64-bit HP 9000 HP-UX 10.20 and higher, applications on the Integrity® line of HP-UX 11i v2 and higher, servers.
- ARIES is a “Dynamic Binary Translator with Environment Emulation”.
- ARIES is bundled with HP-UX on Integrity servers in the following form:
  - `/usr/lib/hpux32/pa_boot32.so` 32 bit ARIES loader
  - `/usr/lib/hpux32/aries32.so` 32 bit ARIES Translator
  - `/usr/lib/hpux64/pa_boot64.so` 64 bit ARIES loader
  - `/usr/lib/hpux64/aries64.so` 64 bit ARIES Translator

# ARIES Technical overview

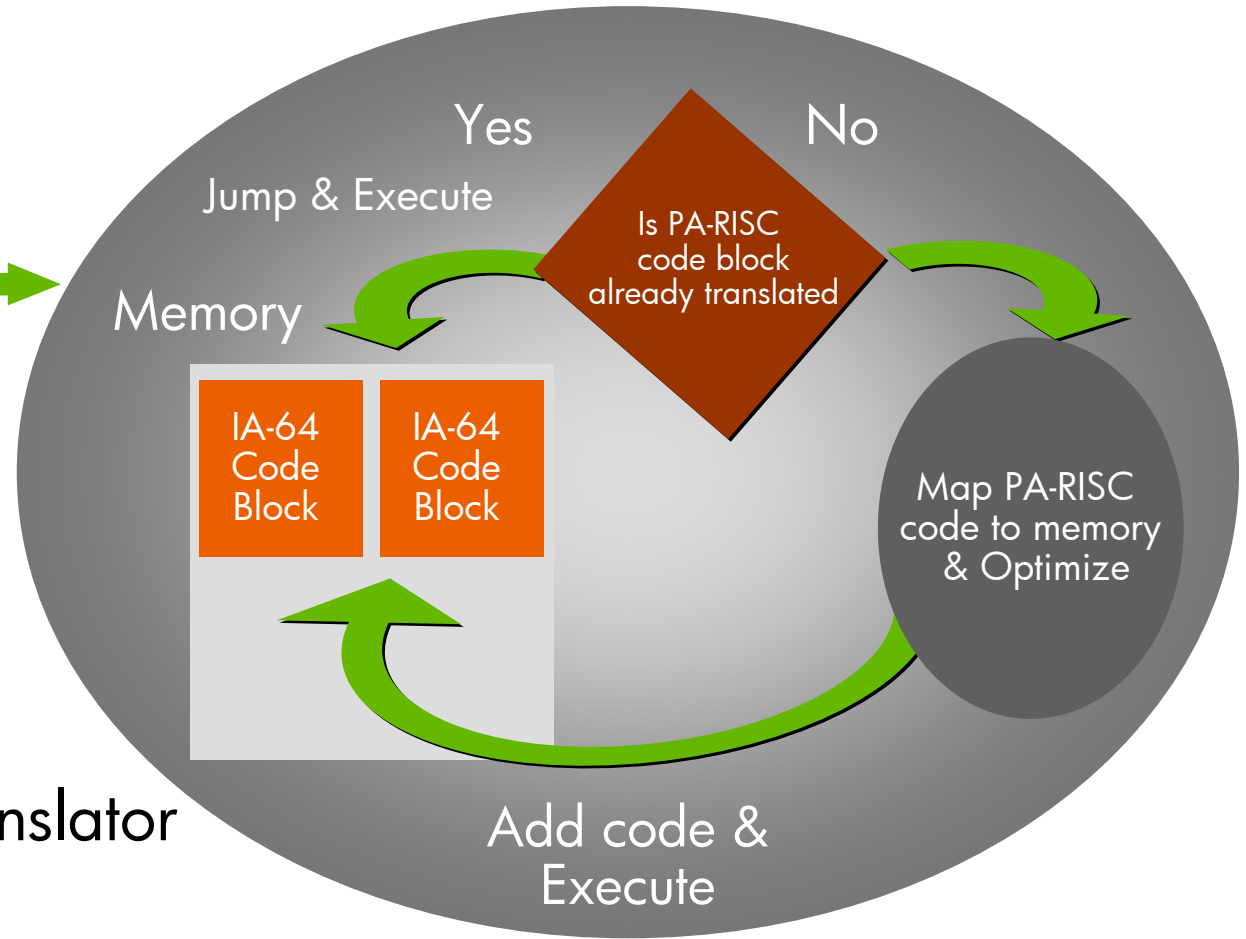


# ARIES Technical overview

HP 9000 Executable



Dynamic Translator



# ARIES Technical overview

## Major ARIES components are

- Loader Starts up ARIES
- Control System Controls interaction among various components
- Interpreter High level PA-RISC instruction interpreter
- Dynamic Translator Translates PA-RISC binary code into IA-64 code – two phase dynamic translation and optimization
- Code Cache Region Translated code buffer
- System Call Manager Handles System call interface for HP 9000 apps
- Exception Manager Handles synchronous, asynchronous signals and creation of HP 9000 application core file.
- Threads Management Handles creation and management of native ARIES threads on behalf of HP 9000 application threads

# HP ARIES

Base features  
and advantages



# ARIES Base features and advantages

- Dynamic and Transparent
  - Absolutely no user intervention required to invoke ARIES.
  - No re-compilation for HP 9000 applications required.
- Completeness
  - Support for **all user mode** HP 9000 applications, both 32-bit and 64-bit.
- Correctness and Reliability
  - Simplicity of ARIES design has yielded high reliability.
  - Emulation of all (non-privileged) PA-RISC instructions.
  - Emulation of the exact HP 9000 HP-UX environment.
- Exact HP 9000 HP-UX – like interface
  - Bundled with the HP-UX OE, kernel support for transparency.
  - Run HP 9000 applications on Integrity HP-UX server the same way as on an HP 9000 server.
- Good performance for wide range of HP 9000 applications.

# ARIES Base features and advantages

- Time to market – **ARIES can buy you time to pursue native port to Integrity HP-UX servers.**
- Most applications work out-of-the-box.
- OS and language runtime dependencies handled automatically.
- Third party dependencies handled (not support issues though).
- Ideal for HP 9000 applications dependent on legacy libraries that will never be ported to Integrity HP-UX servers e.g. `libcma`.
- Ideal for legacy versions of HP 9000 applications that will never be ported to Integrity HP-UX servers.
- ARIES is fully supported product from HP.
- Same debugging tools can be used as on HP 9000 servers.

# HP ARIES

## Supportability features



# ARIES Supportability features

## Supportability features provided to enable

- Easy and quick diagnosis of the application faults
  - Application crashes
  - Core-dumps
  - Incorrect behavior
  - Hangs
- Identification of ARIES faults leading to application failures

# ARIES Supportability features

## ARIES provides following supportability features

- Core file of the HP 9000 application in case of an application failure.
- Debugging the HP 9000 application using the HP 9000 GDB where both run under ARIES.
- Attaching HP 9000 GDB to an already running emulated process.
- Memory leak detection of HP 9000 application under ARIES using HP GDB.
- Using HP 9000 system call tracer `tusc` to monitor application's system calls and signals.
- ARIES supportability features simplify HP 9000 applications support on Integrity HP-UX servers.

# ARIES Supportability features

## Core File of HP 9000 applications

- ARIES writes a core file '`core.<application_name>`'. Such a core is generated in the same cases as when the application would have generated '`core`' when running on an HP 9000 server.
- The file format of the core dump is same as that produced on HP 9000 servers i.e. SOM for 32-bit executables and ELF for 64-bit executables.
- The core produced by ARIES may be used for failure analysis on an HP 9000 server or on an Integrity HP-UX server using the HP 9000 WDB (running under ARIES).
- To debug the ARIES generated HP 9000 application core file on a different server, refer to GDB help on `packcore` command.
- ARIES follows all standard HP-UX conventions for generation of HP 9000 application core file.
- Usage: `gdb a.out core.a.out`
- For more details refer to `aries(5)` man page.
  - Online ARIES man page <http://docs.hp.com/en/B3921-60631/ARIES.5.html>

# ARIES Supportability features

## Debugging HP 9000 applications on Integrity HP-UX servers

- HP 9000 applications can be debugged through GDB on an Integrity HP-UX server in ARIES mode.
- GDB user interface remains unchanged.
- WDB GUI is supported.
- Negligible loss of performance in interactive mode.
- The HP 9000 GDB is included by default as part of the Integrity HP-UX WDB/GDB package.
- All GDB commands work just like they would on an HP 9000 server.
- ARIES does not support debugging of HP 9000 MxN applications. Such applications can be debugged in traditional 1x1 model.
- GDB can be **attached** to an already running emulated process under ARIES.
- For more details refer to `aries(5)` man page.
  - Online ARIES man page <http://docs.hp.com/en/B3921-60631/ARIES.5.html>

# ARIES Supportability features

## Memory Leak detection of HP 9000 applications

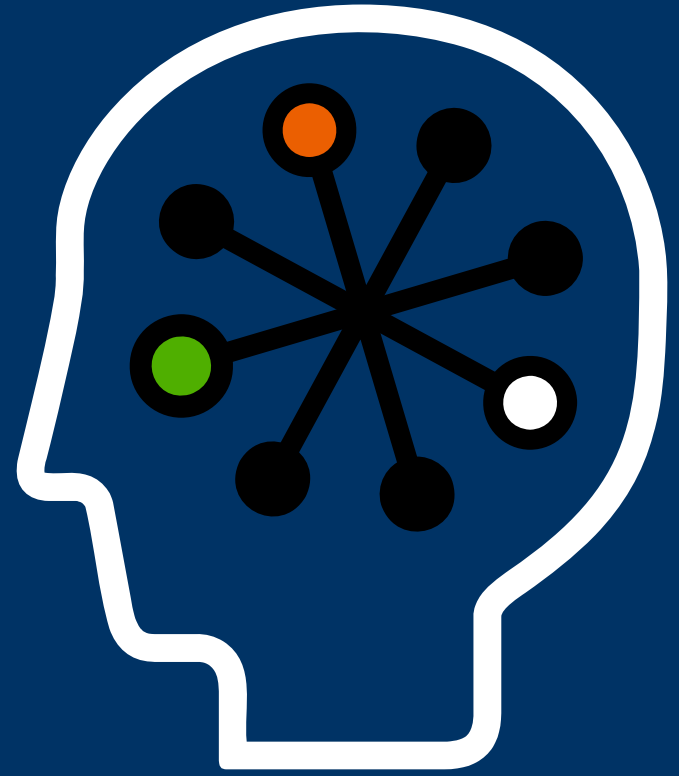
- HP 9000 application cannot leak memory under ARIES unless it does so on an HP 9000 server.
- HP GDB can be used to detect memory leaks of HP 9000 applications running under ARIES.
- Refer to HP GDB documentation for more details.

# ARIES Supportability features

- Tracing HP 9000 application system calls/signals
  - HP 9000 system call tracer `tusc` can be used to trace HP 9000 applications.
  - Both command line start up and attach modes are supported.
  - Integrity HP-UX native `tusc` is not useful to monitor HP 9000 application's system calls as some system calls are returned from within ARIES.
- Usage:
  - `export PA_DEBUG=1`
  - `tusc <args> <path_to_PA-RISC_executable> <app_args>`
  - `tusc <args> <PID_of_PA-RISC_process>`
- Limitation:
  - Only one level of parent/child processes can be traced i.e. if child process does `fork()` – the child's child process cannot be traced under current implementation of emulated process tracing under ARIES.

# HP ARIES

## Deployment: Items to consider



# ARIES: When and where to use

## When ARIES is a recommended solution

- Porting the application is an enormous effort and the time-to-market is critical.
- The application is reasonably well behaved i.e. it does not use undocumented/unsupported HP-UX features.
- The performance under ARIES is acceptable.
- The third party solutions have not yet been migrated to Integrity HP-UX platform.

# ARIES: When and where to use

## When ARIES is the ONLY solution

- Legacy applications where application sources are not available.
- Application depends on legacy libraries which will NEVER be ported to Integrity HP-UX servers.
  - Example, `libcma` (CMA threads) on HP9000 HP-UX servers.
- Application uses legacy versions of software which will NEVER be ported to Integrity HP-UX servers by the ISVs.
- Third party application vendors do not have plans to migrate their solution to Integrity HP-UX servers.
- Porting the application cannot be completed with satisfactory quality within a reasonable time.

# ARIES: When and where to use

## When ARIES is NOT the recommended solution (due to performance implications)

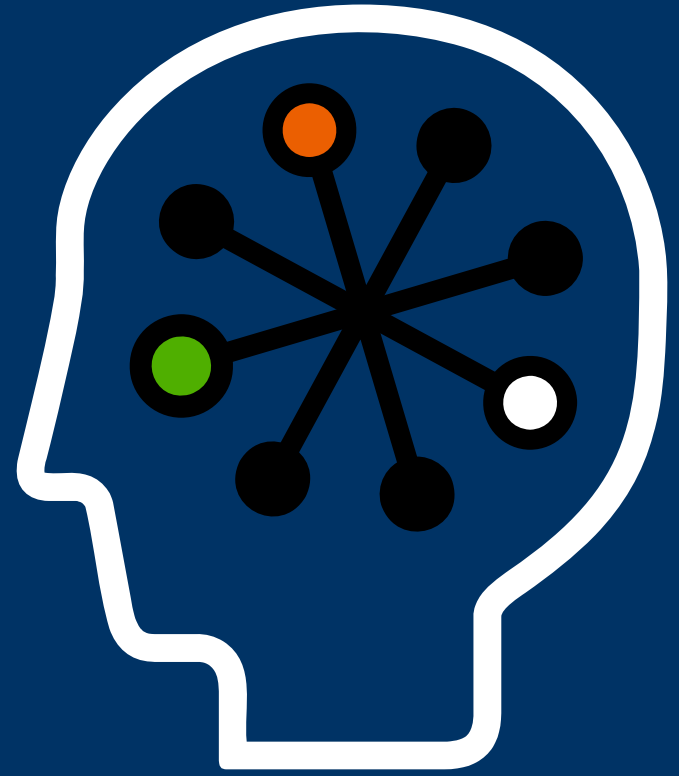
- Application is floating point intensive.
- Application is Java based short running (few seconds) process.
- Applications that want minimal memory foot print (ARIES adds to process resident memory size).
- Application start up time is critical.
- High availability/mission critical environments
- Application uses parsers (XML), shells, interpreters (PERL).
- **ADVICE:** Use Integrity HP-UX native ports of applications.

# ARIES: When and where to use

## When ARIES is NOT the recommended solution

- You want to optimize your application to take advantage of the Integrity native HP-UX 11i v2 and higher APIs, system calls and architecture features.
- You are concerned that your application might not perform as expected on the HP Integrity HP-UX platform under ARIES.
- Your Independent Software Vendor (ISV) may not support their applications running in ARIES mode.

# HP ARIES Performance implications



# ARIES Performance implications

**Guideline: ARIES performance is GOOD for**

- I/O intensive or Interactive applications.
- Loop intensive, integer compute based application with frequent references to select parts of code (very good code locality).
- Static rendering graphics applications (without animations).
- Memory intensive applications.
- Certain database clients that have frequent references to select parts of code and do not have real-time constraints on themselves.
  - Transaction response times under ARIES may vary.
  - HP recommends performance benchmarking of the high availability applications under ARIES before deployment to make sure that throughput, response times, memory pressure and CPU utilization are within acceptable limits.

# ARIES Performance implications

**Guideline: ARIES performance is NOT GOOD for**

- Floating point intensive applications.
- Java based short running applications.
- Multi-threaded applications that create lot of threads and spend significant amount of time in thread synchronization operations.
- Applications compiled with `+Ovolatile` compiler option.
- OpenGL based applications
  - Such application may work with good performance if they can use `display lists` and can communicate with OpenGL daemon process using GLX protocol.
- Applications that use parsers (XML), shells, interpreters (PERL).
- **ADVICE:** As far as possible deploy the native ports (if available) of applications on Integrity HP-UX servers.

# ARIES Performance implications

**Guideline: ARIES performance is NOT GOOD for**

- Transaction processing applications having several hundred processes to handle requests.
  - Each process runs for a small duration and ARIES overhead of dynamic translation does not get amortized.
  - Explore if the application environment allows for limiting the no. of server processes or if single server process mode can be used.
  - Large no. of processes add to memory pressure (ARIES adds to process resident memory size) on the system thereby reducing overall server throughput.

# ARIES Performance implications

## Summary

- ARIES performance comparison (with latest 11.23 ARIES patch [PHSS\\_36519](#))
  - **HP 9000 Server:** rp4440 PA8800 @1000 Mhz
  - **Integrity Server:** rx4640 Itanium2 Madison 6M @1500 Mhz 8 GB RAM
  - Both servers have 4 CPUs (rp4440 has 2 dual core CPUs).

Benchmark	ARIES Performance compared to Integrity server	ARIES Performance compared to HP 9000 server
SpecINT2000	45%	80%
SpecFP2000	20%	50%
SpecJVM98	45%	50%
SpecJBB2000	68%	77%

- ARIES mode performance of actual customer applications will vary depending on execution profile and could be comparable or better than HP 9000 servers for majority of applications.

# HP ARIES Limitations



# ARIES Limitations

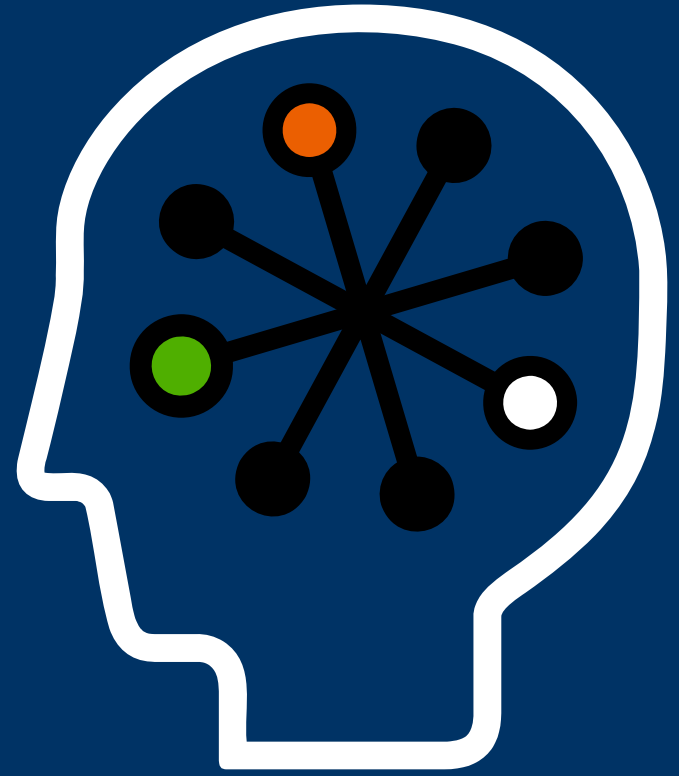
- All HP 9000 user mode applications will work fine under ARIES with following exceptions:
  - Loading of Integrity shared libraries by HP 9000 applications, is currently not supported.
  - No support for very old applications that use page size lower than 4 KB.
  - No support for privileged PA-RISC instructions - thus HP 9000 kernel modules are not supported.
  - Timing dependent HP 9000 applications may experience incorrect behaviour under ARIES. Such applications are not portable anyway.
  - Applications that use `profil()` or `ptrace()` system calls, are not supported.
  - Applications that are maxed out on their data segment virtual address space usage, are not supported.
  - Applications that rely on differences of `fork()` and `vfork()` system calls, are not supported.
  - ARIES emulates MxN threads as traditional 1x1 threads. There is no impact on application functionality and correctness though.

# ARIES Limitations

- ARIES supports HP 9000 applications on HP Integrity servers that run correctly on the same HP-UX version on HP 9000 servers, whether the application was built on that version of HP-UX or a prior version and supported by virtue of the HP-UX binary compatibility statement.

# HP ARIES

## Options overview



# ARIES options overview

- Options to ARIES are specified through resource configuration file:
  - `.ariesrc` for 32-bit ARIES
  - `.aries64rc` for 64-bit ARIES
- ARIES RC file can be placed in one of following locations:
  - System root directory (`/`)
  - Application directories making up the path to HP 9000 executable
  - User's home directory (`$HOME`)
- ARIES RC file format
  - ARIES RC file format is application-full-path followed by ARIES options.
  - Application-full-path can have wild-cards '\*' in directory and application name parts.
- Refer to `aries(5)` man page for detailed information on ARIES RC file.
  - Online ARIES man page <http://docs.hp.com/en/B3921-60631/ARIES.5.html>

# ARIES Options overview

- Refer to `aries(5)` man page for detailed overview of ARIES options:
  - [no]amap\_smc Separate AMAP for JVM type applications
  - [no]backpatch Patch the translated code blocks
  - [no]breaker Scheduling of ARIES translated code
  - [no]compat\_core HP 9000 core file in old format
  - [no]corepid Append PID to core file name
  - [no]fpsr\_trans Translate code that accesses PA-RISC FPSR
  - [no]help Print ARIES option ranges (default/min/max)
  - [no]mem\_fence Enforce memory fence instruction for ordered memory operations
  - [no]mem\_min ARIES to run in low memory footprint mode
  - [no]mem\_order Enforce strong memory ordering in ARIES
  - [no]opt\_fpgr Map FP register context on general register stack
  - [no]opt\_reorder Reorder PA-RISC state changing instructions
  - [no]pa\_os\_cpu Return value of `uname()` and `sysconf()` to be as on HP 9000 server
  - [no]sched\_trace Trace scheduling of ARIES translated code

# ARIES Options overview

<code>-[no]trans</code>	Dynamic translation of PA-RISC basic blocks
<code>-[no]unsafetrans</code>	Dynamic translation of JVM like applications
<code>-amapsz</code>	Size in KB of ARIES AMAP region
<code>-amapsz_smc</code>	Size in KB of ARIES private AMAP region (for JVM)
<code>-ap_heap_ssz</code>	Size in KB of ARIES private heap region
<code>-aries_bssz</code>	Size in KB of ARIES backing store area (non-main thread)
<code>-aries_ssz</code>	Size in KB of ARIES thread stack (non-main thread)
<code>-ccsz</code>	Size in KB of ARIES code cache region to store translations
<code>-core_format</code>	v1/v2 old or new core file format for HP 9000 application core file
<code>-descsz</code>	Size in KB of ARIES descriptors for translated code
<code>-exc_dynt_heap_ssz</code>	Size in KB of ARIES dynamic translator and exception manager heap
<code>-heap_ssz</code>	Size in KB of ARIES heap region (malloc heap + thread stack)
<code>-issz</code>	Size in KB of initial stack size for HP 9000 application
<code>-load</code>	Load the previously saved ARIES translations from the file
<code>-nomore</code>	Stop processing ARIES options from any source down the hierarchy

# ARIES Options overview

<b>-osinc</b>	Size in KB of ARIES memory allocation chunk size
<b>-reset_all</b>	Reset all processed ARIES options to their default values
<b>-save</b>	Save ARIES translations to file
<b>-ssz</b>	Size in KB of HP 9000 application stack
<b>-ts</b>	ARIES dynamic translation threshold
<b>-ts_trace</b>	ARIES dynamic translation threshold for trace scheduling

- Options mentioned above in **bold** are the ones that users may be referring to frequently.

# ARIES Options overview

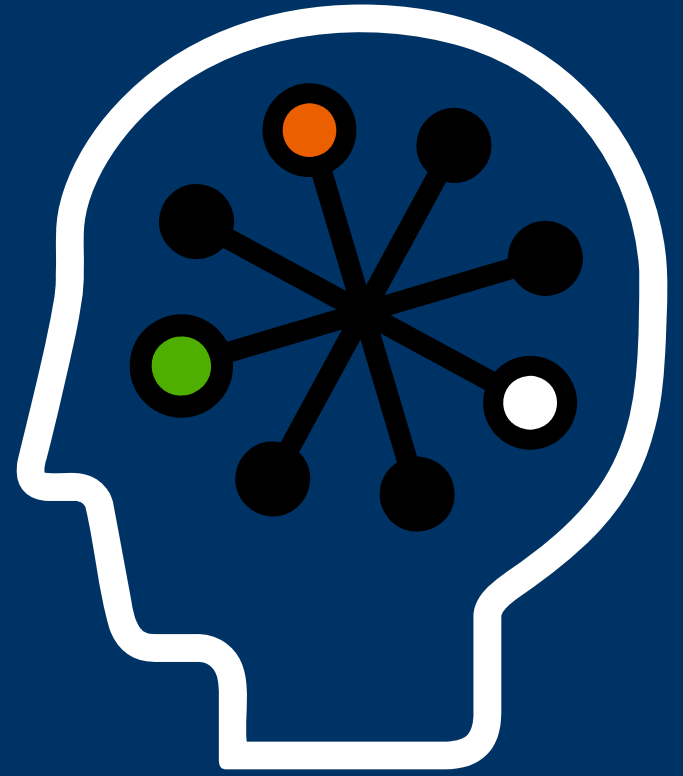
Available ARIES options and allowed values:

ARIES Option Name	Option Type	Minimum Value	Maximum Value	Default Value
-[no]amap_smc	ON/OFF flag	-	-	ON
-[no]backpatch	ON/OFF flag	-	-	ON
-[no]breaker	ON/OFF flag	-	-	OFF
-[no]compat_core	ON/OFF flag	-	-	ON
-[no]corepid	ON/OFF flag	-	-	OFF
-[no]fpsr_trans	ON/OFF flag	-	-	OFF
-[no]help	ON/OFF flag	-	-	OFF
-[no]mem_min	ON/OFF flag	-	-	OFF
-[no]mem_fence	ON/OFF flag	-	-	OFF
-[no]mem_order	ON/OFF flag	-	-	OFF
-[no]opt_fpgr	ON/OFF flag	-	-	ON
-[no]opt_reorder	ON/OFF flag	-	-	OFF
-[no]pa_os_cpu	ON/OFF flag	-	-	OFF
-[no]sched_trace	ON/OFF flag	-	-	OFF
-[no]trans	ON/OFF flag	-	-	ON
-[no]unsafetrans	ON/OFF flag	-	-	ON
-amapsz	uint32_t	8192 KB	65536 KB	16384 KB
-amapsz_smc	uint32_t	512 KB	4096 KB	2048 KB
-ap_heap_ssz	uint32_t	1024 KB	variable	4096 KB
-aries_bssz	uint32_t	48 KB	64 KB	48 KB
-aries_ssz	uint32_t	128 KB	256 KB	160 KB
-csz	uint32_t	4096 KB	65536 KB	16384 KB
-core_format	char *	v1	v2	v2
-descsz	uint32_t	4096 KB	32768 KB	8192 KB
-exc_dynt_heap_ssz	uint32_t	5120 KB	8192 KB	5120 KB
-heap_ssz	uint32_t	8196 KB	variable	22528 KB
-issz	uint32_t	32 KB	-ssz value	64 KB
-load	char *	-	-	NULL
-nomore	ON/OFF flag	-	-	OFF
-osinc	uint32_t	4 KB	1024 KB	64 KB
-reset_all	ON/OFF flag	-	-	OFF
-save	char *	-	-	NULL
-ssz	uint32_t	256 KB	392192 KB	8192 KB
-ts	uint32_t	0	UINT32_MAX	16
-ts_trace	uint32_t	0	UINT32_MAX	1024

- ARIES option values shown on the left are for 32-bit ARIES.
- These values are obtained with `-help` ARIES option in ARIES RC file.
- Similarly 64-bit ARIES option value ranges can be obtained by passing `-help` ARIES option in ARIES RC file.
- When `-help` ARIES option is specified in ARIES RC file, the process will exit after printing the help menu.
- Some of the ARIES options mentioned in this presentation are available in ARIES starting from patches:
  - [PHSS\\_36519](#) (11.23)
  - [PHSS\\_36520](#) (11.31)

# HP ARIES

## Latest Releases and Patches



# ARIES Latest releases and patches

- ARIES product

<b>Release</b>	<b>Current Patch</b>	<b>Released</b>	<b>Remarks</b>
11.23	PHSS_36519	Nov 28, 2007	Perf + defect fixes
11.31	PHSS_36520	Nov 28, 2007	Perf + defect fixes

- ARIES man page

<b>Release</b>	<b>Current Patch</b>	<b>Released</b>	<b>Remarks</b>
11.23	PHCO_36445	Dec 02, 2007	English
11.31	PHCO_36447	Dec 02, 2007	English
11.23	PHCO_36446	-- Delayed --	Japanese
11.31	PHCO_36448	-- Delayed --	Japanese

11.23 ↔ HP-UX 11i v2

11.31 ↔ HP-UX 11i v3

- Released ARIES patches can be downloaded from <http://itrc.hp.com>.
- ARIES patches are also delivered as part of HP-UX OE QPK bundles.

# HP ARIES Robustness



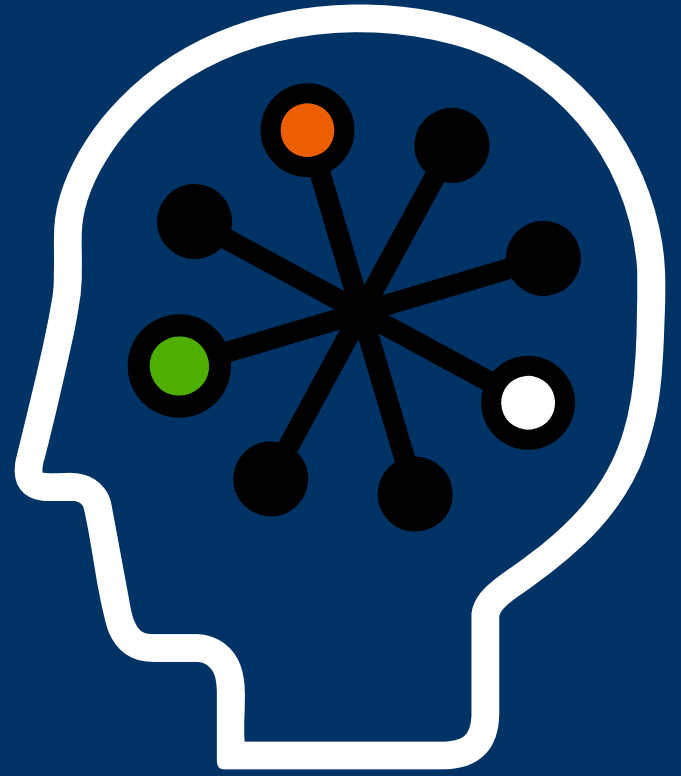
# ARIES Robustness

- First ARIES release was during 2001. More than 6 years of field experience.
- Many customers and ISVs have adopted ARIES as quick and easy migration path to Integrity HP-UX servers.
- ARIES based deployments include:
  - Database applications
  - Application servers
  - Web Servers
  - Telecom Applications
  - On line application and services management
  - Graphics/CAD/CAE applications
  - Engineering Applications
  - System/Enterprise manageability solutions
  - Storage applications

# ARIES Robustness

- ARIES correctness is verified using
  - Random instruction set generator,
  - Regression test suites of system shared libraries and
  - Several hundred hand written targeted functional test cases.

# HP ARIES Support



# ARIES Support

- ARIES binary compatibility support document:  
[http://h20338.www2.hp.com/hpux11i/downloads/ARIES\\_Compatibility\\_Support\\_Statement.pdf](http://h20338.www2.hp.com/hpux11i/downloads/ARIES_Compatibility_Support_Statement.pdf)
- ARIES is a dynamic binary translator that provides binary compatibility\* for applications (32-bit and 64-bit) that were built on HP-UX 10.20 and higher on HP 9000 to run unmodified on an HP Integrity server. The use of ARIES is completely transparent. ARIES is shipped free of charge as part of the operating environment (OE) on all versions of HP-UX 11i running on HP Integrity servers.
- HP is committed to investment protection for its customers, partners and ISVs. HP assures support and bug fixes for ARIES so that existing HP 9000 applications can behave the same on HP Integrity servers as they did on HP 9000 servers\*\*.
- ARIES supports HP 9000 applications on HP Integrity servers that run correctly on the same HP-UX version on HP 9000 servers, whether the application was built on that version of HP-UX or a prior version and, supported by virtue of the [HP-UX binary compatibility statement](#).

# ARIES Support

- Any issue encountered during application runtime using ARIES may be attributed to ARIES or the application itself. If the problem is not encountered on an HP 9000 server, HP recommends the HP IT Response Center ([ITRC](#)) for technical support on ARIES. Otherwise, for product support related to HP 9000 ISV applications that are deployed under ARIES, HP recommends contacting the respective application vendor(s) for resolution.

\* [ARIES limitations](#)

\*\* All user space applications subjected to ARIES limitations.

- For more information
  - HP ARIES Dynamic Binary Translator  
<http://www.hp.com/go/aries>
  - HP-UX 11i compatibility for HP Integrity and HP 9000 servers  
[http://h20338.www2.hp.com/hpux11i/downloads/HP-UX\\_Binary\\_Compatibility.pdf](http://h20338.www2.hp.com/hpux11i/downloads/HP-UX_Binary_Compatibility.pdf)
  - HP-UX compatibility – Technical white paper  
<http://h21007.www2.hp.com/portal/download/files/unprot/hpux/5981-7108en.pdf>
  - <http://www.hp.com/go/hpux11i>
  - <http://www.hp.com/go/integrity>

# ARIES Support

- Regardless of which HP 9000 HP-UX version the application was compiled on, ARIES will run the application in Integrity HP-UX version mode.
  - On Integrity HP-UX 11.23 (11i v2) ARIES will run all HP 9000 applications in HP-UX 11.23 mode.
  - On Integrity HP-UX 11.31 (11i v3) ARIES will run all HP 9000 applications in HP-UX 11.31 mode.
- ARIES is as secure as the emulated HP 9000 application.
  - ARIES runs in user space with user credentials.
  - For each invocation of HP 9000 application a separate ARIES instance gets launched.
  - ARIES does not create or overwrite temporary files (including diagnostics) if the emulated HP 9000 application is `setuid` or `setgid`.

# ARIES Support

- For HP 9000 applications deployed under ARIES on HP Integrity HP-UX servers
  - HP support is for ARIES product only.
  - HP support includes consultation for installation issues, resolution of ARIES issues resulting in HP 9000 application failures and triaging of performance issues.
  - For triaging of issues if necessary the user may be required to demonstrate that the issue does not reproduce on an HP 9000 server.
- For installation of HP 9000 applications or patches on Integrity HP-UX servers, following option need to be passed to 'swinstall' command:
  - `-x allow_incompatible=true`
- To avail official HP support on ARIES, customers must have HP-UX OE support. ARIES is bundled as part of all HP-UX OE(s).

# ARIES Support – Troubleshooting

## Triaging of HP 9000 application failure under ARIES

- Just because the application failed when migrated under ARIES, it may not always be an ARIES fault.
  - Check the application error/diagnostic logs.
  - All ARIES error/warning/diagnostic messages begin with `[HP ARIES32/64]:`
  - Check for missing shared libraries or ones with wrong file permissions.
  - Check for the latest patch levels of shared libraries that the application depends on.
  - Trace the application with HP-UX system call tracer `tusc`.
  - Use HP WDB/GDB to get PA failure symptom/reason.
- If no valid reason for HP 9000 application failure is found. Or, an inconsistent PA-RISC state is found – it could be an ARIES problem.
  - HP will provide diagnostic ARIES to the user and get ARIES trace logs.
  - If required, ARIES lab might request access to customer system to analyze the problem.

# ARIES Support – Troubleshooting

- Refer to ARIES web page <http://www.hp.com/go/aries>
  - **FAQ**: for general questions on ARIES.
  - **ARIES Troubleshooting**: for commonly encountered issues under ARIES.
- Multi-threaded applications may fail under ARIES with `errno` set to `EAGAIN` while creating large no. of threads.
  - Increase the value of kernel tunable parameter `pa_maxssiz_32bit`.
  - Increase the value of ARIES option `-heapssz`.
- Some application e.g. Oracle client require install time re-linking through `cc` driver – this does not work out of the box.
  - Install following (or later) patches
    - **PHSS\_34420**: s700\_800 11.23 bundled PA C compiler on IPF
    - **PHSS\_36342**: s700\_800 11.23 linker + fdp cumulative patch
  - Change the installation scripts to include `/usr/ccs/pa/usr/ccs/bin` as first directory in `$PATH` environment variable.

# ARIES Support – Troubleshooting

- Using HP-UX tools to triage performance issues
  - **Caliper**: Can be used to triage ARIES performance since ARIES is the actual entity running on the Integrity HP-UX server. Caliper like output cannot be obtained for the HP 9000 application.
  - **Glance** and **Prospect**: System information reported by Glance is valid, but information like flat profile will pertain to ARIES rather than the HP 9000 application.
  - All the information about kernel behavior for a HP 9000 emulated application will be valid under ARIES mode.

# HP ARIES Customer testimonials

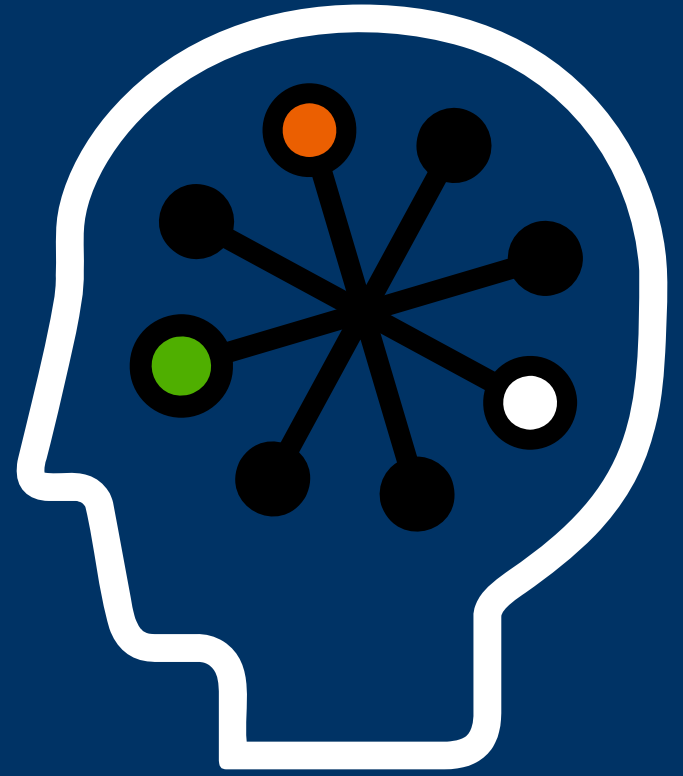


# ARIES Customer testimonials

- Telecom company in APJ region
  - I've never heard about ARIES related trouble after the cut over. Performance better than customer expected.
- Enterprise IT management software vendor in APJ region
  - Quite impressed. The <snip> application worked like a charm under ARIES. No problems.
- Financial research major in APJ region
  - We met some troubles with ARIES. But we were able to provide our customers <snip> under ARIES as promised. It's owing to HP's great support.

# HP ARIES

Officially supported  
applications



# ARIES: Officially supported applications

- Oracle Inc. [Aug 2007]
  - Oracle database client application version 10g R2
    - Starting from Aug 30, 2007 Oracle formally supports running Oracle database client application using ARIES on HP Integrity HP-UX servers.
    - For more details refer to Doc. ID **Note:456553.1** on Oracle Metalink site (<https://metalink.oracle.com>).

# ARIES: Officially supported applications

- HP [This information is out of date]
  - OVO Unix 8.1 [March 2005]
    - For more details refer to [http://h18000.www1.hp.com/emea/presalessupport/downloads/March\\_bulletin\\_2005.pdf](http://h18000.www1.hp.com/emea/presalessupport/downloads/March_bulletin_2005.pdf)
    - Effective March 18, 2005 HP OpenView Operations 8.1 for UNIX management server officially supports to run on HP Integrity servers under HP-UX ARIES dynamic translation mode. This is a temporary support statement until the HP OpenView Operations 8.1 for UNIX product will be supported in native mode on HP Integrity servers, which is expected latest by Q4 CY2005. Unless customers have an urgent business need to move their OVO/UNIX environment to HP Integrity servers, it is recommended to wait for the native mode support to avoid multiple migrations.
  - NNM AE 7.5 [Feb 2005]
    - HP NNM (Network Node Manager) AE (Advanced Edition) 7.5 was released under ARIES mode during Feb 2005.

# ARIES: Officially supported applications

- BSP Inc. Japan [Mid 2004]
  - A-AUTO V4
    - <http://www.bsp.jp/en/products/aauto.html>
    - A-AUTO - Job management designed for mission critical application
    - A-AUTO can schedule both the usual daily jobs and those left over from the day before.
    - Even if the workload increases, A-AUTO provides reliable monitoring of job progress with minimum staff.
    - Different versions of A-AUTO can cooperate.
    - A-AUTO performs on more than 20 platforms and is not dependent on any particular hardware.
    - BSP supports A-AUTO application on Integrity HP-UX servers under ARIES.

# ARIES: Case studies

- CORALY Lyon Highways Monitoring Center migration to HP Integrity servers
  - ARIES runs the application layer that interfaces with the new CORALY environment remotely.
  - CORALY (Coordination et Régulation du trafic de l'Agglomération Lyonnaise) is a traffic-management system run by operators of roads in the Lyon region, which bear the heaviest traffic in France. An operator, Direction Départementale de l'Équipement du Rhône, worked with systems integrator AMEC SPIE to develop this collaborative, real-time infrastructure, which dissolves bottlenecks in minutes and improves road safety. AMEC SPIE recently moved CORALY from HP Tru64 UNIX®-based HP AlphaServer systems to an HP-UX 11i v2 environment comprising HP Integrity servers, boosting performance by 40 percent and providing the capacity for continued innovation and expansion.
  - For more details refer:
    - <http://h71028.www7.hp.com/ERC/downloads/4AA0-0143ENN.pdf>
    - <http://h71028.www7.hp.com/ERC/downloads/c00708322.pdf>
    - <http://h71028.www7.hp.com/erc/library/GetPage.aspx?pageid=120984&audienceid=638&statusid=0&ccid=0&langid=121&ERL=true>

HP ARIES  
HP Products  
supported



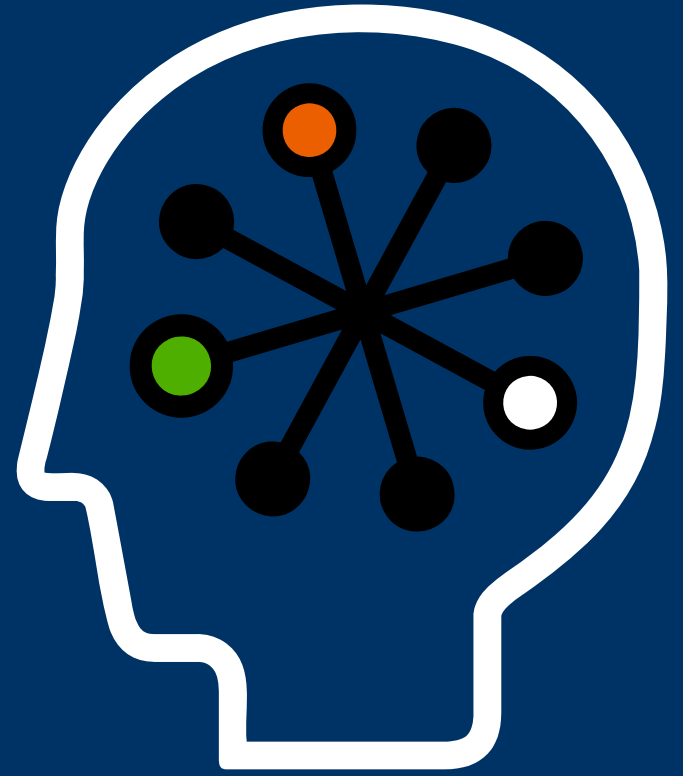
# Release of OVO/NNM AE under ARIES

- The HP OpenView Products OVO/Unix 8.1 and NNM AE 7.5 were released on HP Integrity HP-UX servers under ARIES mode -
  - NNM AE 7.5 on Feb 14, 2005.
  - OVO/Unix 8.1 during March 2005.
- Several factors led to release of OVO/Unix 8.1 and NNM AE 7.5 under ARIES mode:
  - OVO/Unix and NNM AE were not available native on Integrity HP-UX servers.
  - Successful pilot deployment of OVO/Unix 7.1 under ARIES at a customer site prompted general release of OVO/Unix and NNM under ARIES mode.
- Some of OVO/Unix non core secondary agents were released under ARIES.
- Both OVO/Unix and NNM are now available native on HP Integrity HP-UX servers.

# Other applications on ARIES

- WDB GUI
- SAM
- Common Desktop Environment (CDE) and Xmotif
- Softbench
- Many system commands on Integrity HP-UX servers.

# HP ARIES Resources



# ARIES Resources

- On the WEB (externally visible websites)
  - ARIES web page
    - <http://www.hp.com/go/aries>
  - HP Software Transition Kit (STK) website
    - <http://devresource.hp.com/drc/STK/docs/Aries.jsp>
  - ARIES IEEE whitepaper
    - [http://h21007.www2.hp.com/portal/download/files/unprot/hpux/Aries/IEEE\\_Aries\\_paper.pdf](http://h21007.www2.hp.com/portal/download/files/unprot/hpux/Aries/IEEE_Aries_paper.pdf)
  - HP-UX 11i compatibility for HP Integrity and HP 9000 servers
    - [http://h20338.www2.hp.com/hpux11i/downloads/HP-UX\\_Binary\\_Compatibility.pdf](http://h20338.www2.hp.com/hpux11i/downloads/HP-UX_Binary_Compatibility.pdf)
  - HP-UX compatibility – Technical white paper
    - <http://h21007.www2.hp.com/portal/download/files/unprot/hpux/5981-7108en.pdf>
  - Online ARIES manual page for HP-UX 11i v2
    - <http://docs.hp.com/en/B3921-60631/ARIES.5.html>
- On Integrity servers running HP-UX 11i
  - The ARIES manual page **aries(5)** contains an advanced level discussion of all topics covered in this presentation.
  - Online ARIES man page <http://docs.hp.com/en/B3921-60631/ARIES.5.html>

Technology for better business outcomes

