Development Environment

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OpenVMS Engineering

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Agenda

Traditional Environment

- HP DECset

Modern Environment

- Development Tools
- Web Server/Browser
- App Server
- Integration Tools

Common Tools

- Compilers
- Debugger

Q/A

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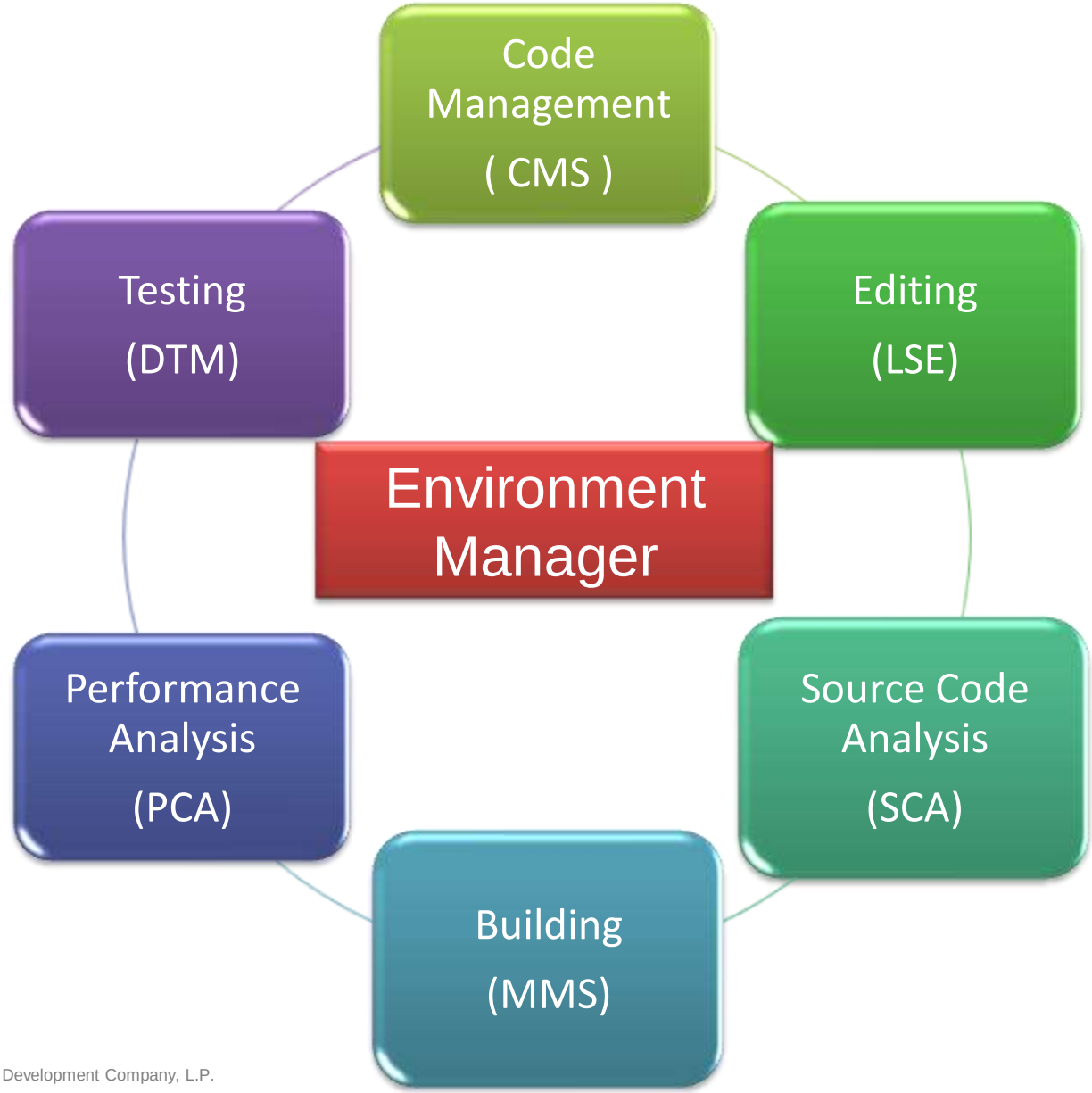
Traditional Tools – HP DECset



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HP DECset for OpenVMS

- Current version
  - DECset V12.8 ECO2 for OpenVMS I64 & Alpha
    - Provide full ODS-5 Disk Structure Support
    - Large Library support with CMS
    - Implement JAR file support in CMS
    - /BINARY

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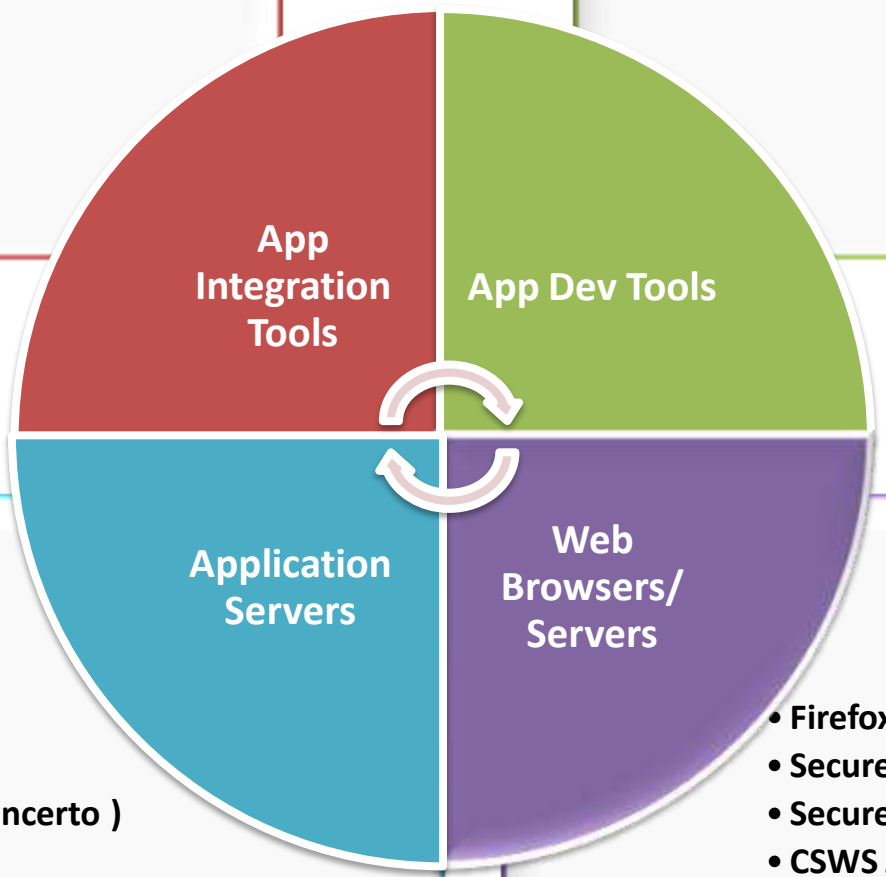
Modern Development Environment

- WSIT
- gSOAP
- Axis2/JAVA, SOAP
- UDDI Client toolkit
- TPware/TPware .NET
- Attunity Connect®
- CONNX®
- Oracle Tuxedo

- IDE
- GNV
- JAVA, ANT
- PERL, PHP, XML



- CSWS Java (Tomcat)
- JBOSS
- PROIV® (formerly Concerto)

- Firefox
- Secure WB/ SeaMonkey
- Secure Web Server (Apache)
- CSWS Java (Tomcat)

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Application Modernization – Why?

- Improved Agility – Quick adoption to changing business needs
- Integration with newer environments
- Skill Crisis
- Reduced TCO

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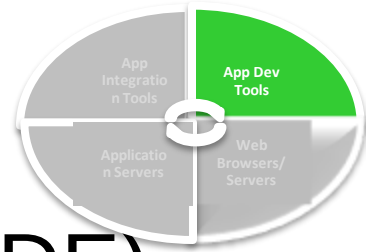

Integrated Development Environment (IDE)

Ease of use

- Desktop used for developing OpenVMS applications

Improves Productivity

Examples

- Distributed NetBeans, NXTWare Remote (Eclipse Based from eCube Systems)

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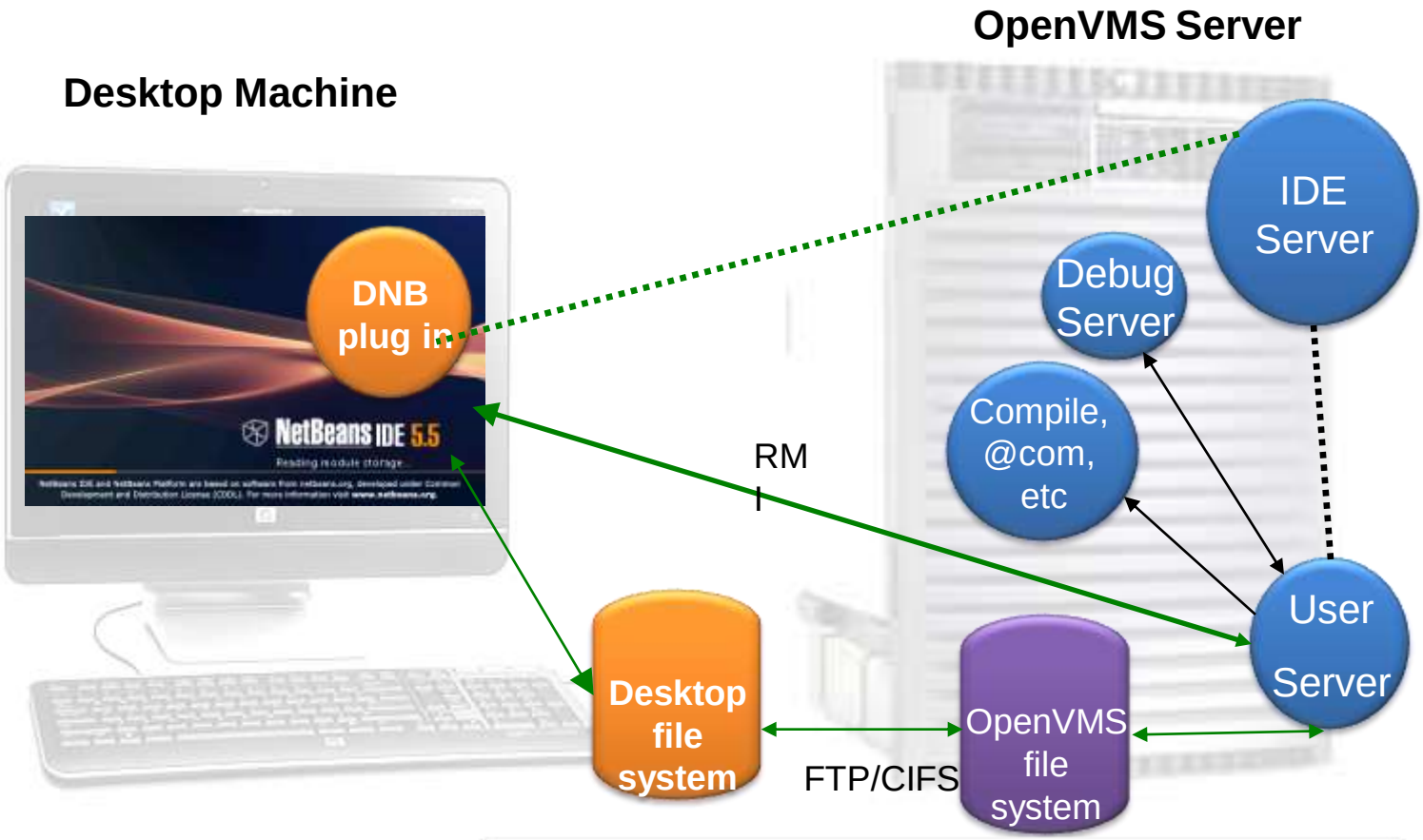
Distributed NetBeans



- Editing with Syntax highlighting
- Remote Compilation/ Execution
- Error Navigation
- Remote Debugging

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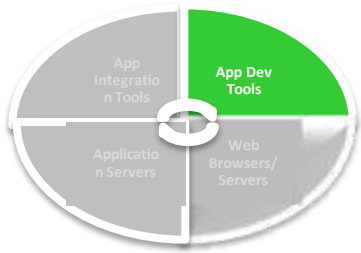
Distributed NetBeans for OpenVMS



Current Version - Features of Version 6.5.1

- This is porting of the NetBeans 5.5 plug-in to NetBeans 6.5
- All the features of NetBeans 6.5 is same as of NetBeans 5.5

Native NetBeans

- NetBeans 3.6 will be supported over the support life of OpenVMS 8.3
- Only supported on Java Platform, Standard Edition, Development Kit (JDK) v 1.4.2-x. Media Distribution

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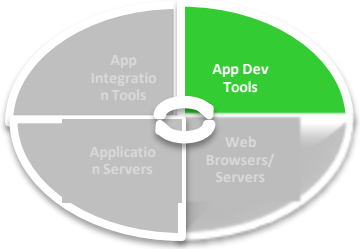
GNV



GNV – **G**NU is **N**ot **V**MS Provides:

- Unix like environment
- Bash Shell
- Commands ls, cp, su, …
- Utilities tar, make, vi, cc, …
- Man pages
- Special OpenVMS utilities mnt, umnt, …

General Information

- Latest sources available in sourceforge.net
- Available for both OpenVMS Alpha as well as IA64
- Current version – 2.1-3

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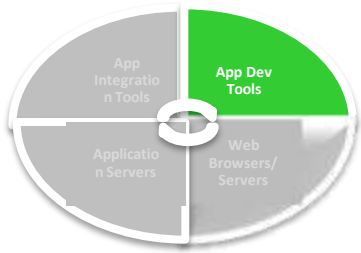
JAVA for OpenVMS Alpha & Integrity



JAVA 6.0 (only available on Integrity)

- JDK and JRE 6.0 available on OpenVMS Integrity
- Large JAVA Heap support, upto a max of 32GB

JAVA 5.0

- JDK and JRE 5.0-6 available for OpenVMS Alpha
- JDK and JRE 5.0-5 available for OpenVMS Integrity

JAVA 1.4.2

- Supported on Integrity and Alpha
- Encouraged to migrate to 6.0 or 5.0

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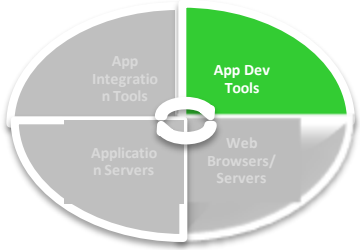
XML and PERL



XML Technology

- based on Apache Xerces and Xalan.
- Supports JAVA and C++
  - XML Java Technology Version 2.0 for OpenVMS Alpha & I64
    - based on Apache Xerces-Java Version 2.3.0 and Apache Xalan-Java Version2.4.1
  - XML C++ Technology Version 3.0 for OpenVMS Alpha & I64
    - based on Apache Xerces C Version 2.7.0 and Apache Xalan C Version 1.10.

PERL

- V5.8-6 Update 2.0 for OpenVMS Alpha and OpenVMS Integrity
  - Fixes for security vulnerabilities

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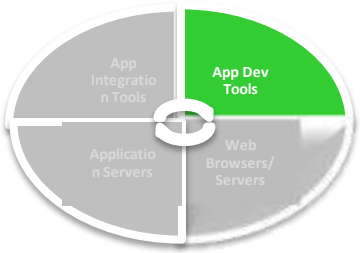
ANT



ANT v1.7

- Runs on OpenVMS Integrity server Version 8.2 and higher
- Runs on OpenVMS Alpha Version 8.2 and higher.
- Java-based build tool, similar to “make”.
- Port of Apache Ant 1.7 to the OpenVMS environment.

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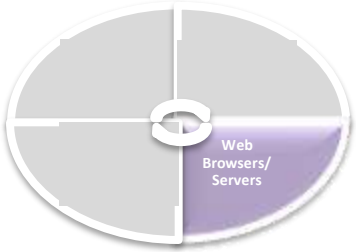
Secure Web Server



SWS 2.1-1 Update 2 (Apache 2.0.52)

- Fixes for Security Vulnerabilities
- Support for Mixed case password authentication
- Performance Improvements

CSWS_PHP V2.1 (PHP 5.2.6)

- Supports extensions/modules supported in PHP1.3.
- No new extensions/modules in PHP2.1 though it is based on open source version 5.2.6.

CSWS_Perl 2.1 ECO1 patch kit (mod_Perl 2.0.1)

- Helps in writing apache modules in Perl

CSWS_Java (Based on Tomcat 5.5.26) 3.1

- Works with Secure Web Server Versions 1.3-1 and 2.1 and higher.
- Does not work with SWS V2.0
- Support for JAVA 6.0 in Update 1 patch on Integrity

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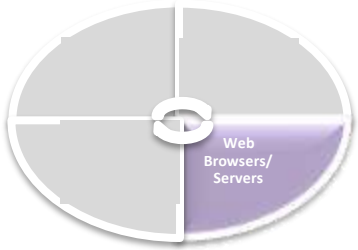
Secure Web Browser



Firefox Web Browser

- HP Firefox Web Browser V2.0-18 based on Mozilla Firefox V2.0.0.18
- Available only on OpenVMS Integrity

Secure Web Browser (based on SeaMonkey)

- Secure Web Browser V1.1-12 based on SeaMonkey V1.1.12
- Available on OpenVMS Integrity and Alpha

~~Secure Web Browser (based on Mozilla)~~

- V1.7-13 based on Mozilla 1.7-13
- Retired on Feb 2010

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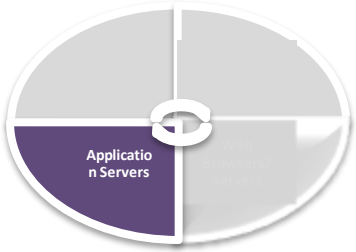
Application Servers



CSWS JAVA (Tomcat) 3.1

- Support for Tomcat 5.5.26
- Works with Secure Web Server Versions 1.3-1, 2.1 and higher.
- Does not work with SWS V2.0

JBOSS

- JAVA EE based Application Server

PROIV® (formerly Concerto)

- Current version 6.2.43 for Alpha(V8.2-V8.3) & IA64(V8.2-1-V8.3-1H1)
- Website (www.proiv.com)

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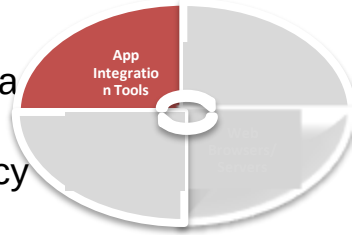
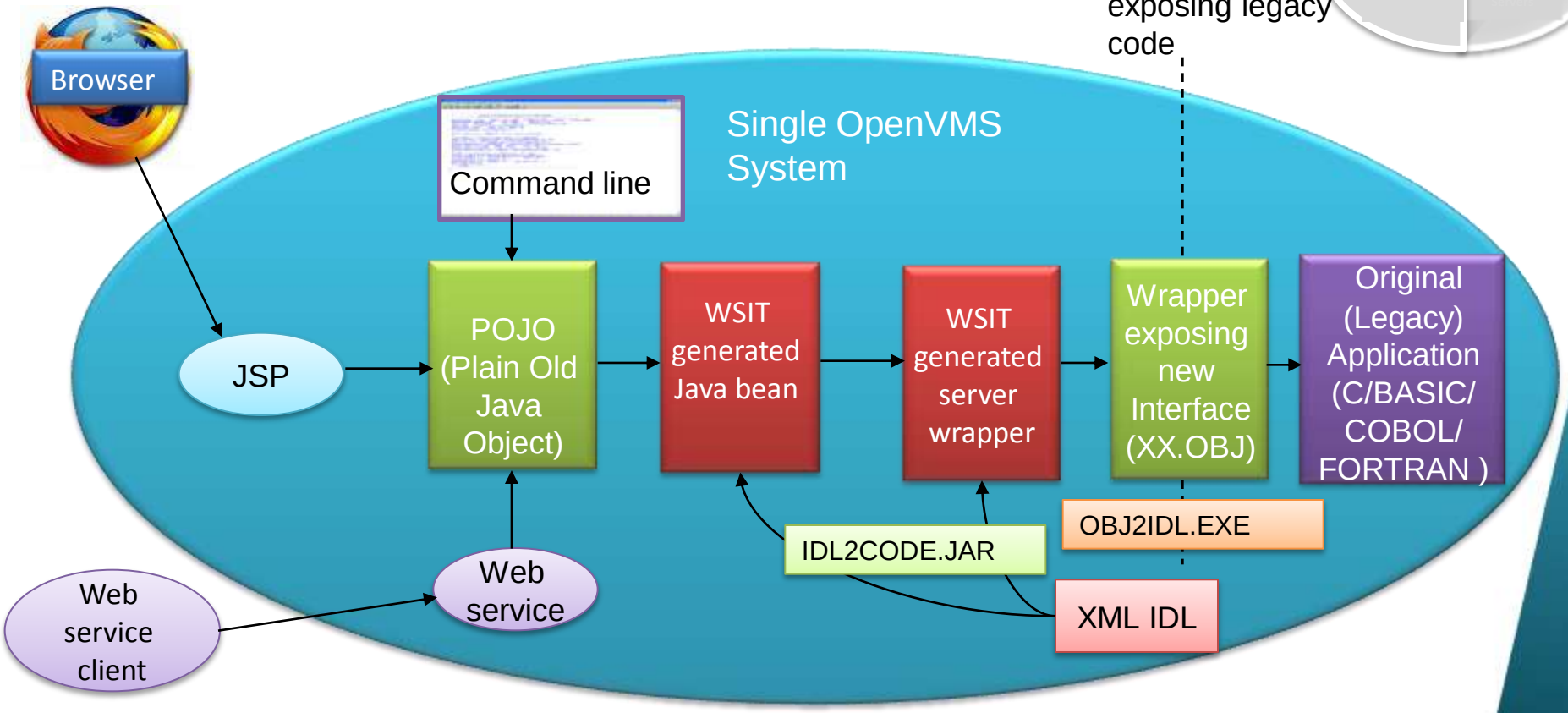
WSIT– In a Nutshell



Single non-java module exposing legacy code



= Newly written code

= WSIT generated

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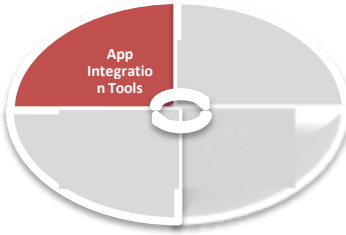
WSIT



Current Version - V3.0 Features

- Automatic stack expansion for single threaded applications
- Option to install the WSIT runtime only
- New log file
- Tracing Feature

Further information :

- OpenVMS Technical Journal article by David Sullivan
- http://h71000.www7.hp.com/openvms/journal/v7/reusing_openvms_applications_from_java.pdf
- http://h71000.www7.hp.com/openvms/products/ips/wsit/

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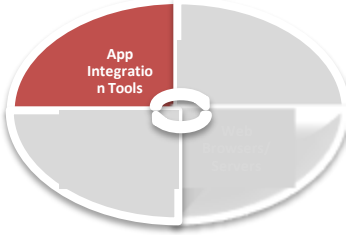
Axis2/JAVA and SOAP



Axis2 Version 1.0 (Port of Apache Axis2 1.3)

- Core engine for web services
- Redesign of the Apache Axis SOAP stack
- Replaces SOAP toolkit for OpenVMS
- Support for only Axis2/JAVA

SOAP (Simple Object Access Protocol)

- Lightweight protocol based on XML
  - Exchange structured information in decentralized, distributed environment
- SOAP toolkit Version 2.0 for OpenVMS Alpha & I64
  - Based on Apache Axis Version 1.1

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gSOAP

What is gSOAP

- Cross-platform open source C and C++ software development toolkit for SOAP Web Services and XML-Based Applications
- Over 150,000 downloads since 2003, over 5,000 mailing list members, and thousands of license/support agreements with companies

Why gSOAP

- Portability
- Stability
- Flexibility
- Small footprint
- High-performance

2265 round-trip calls per second on a 2-CPU 1.4GHz Itanium2 system running Linux 2.6.9 IA64
Measured with 2.2KB XML messages over HTTP

Usage

- Implement Web services
- Call Web services from “legacy” 3GL code

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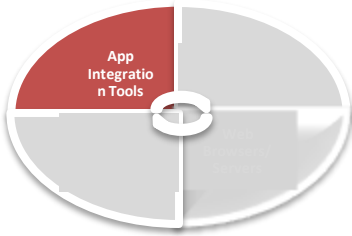
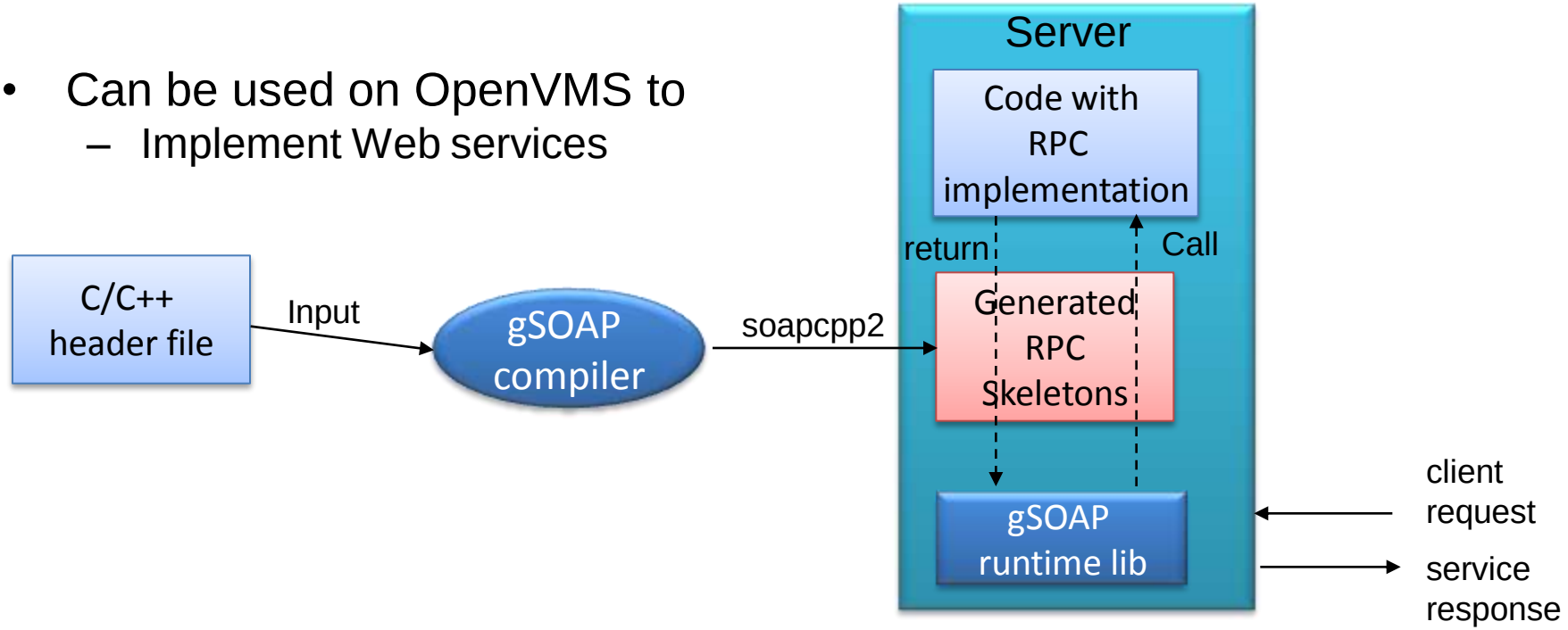
gSOAP – implement Web services



- Can be used on OpenVMS to
  - Implement Web services



  - Create a C/C++ header file containing the necessary data type and service (function prototype) definitions
  - Use soapcpp2 to generate stubs and skeletons
  - Link generated code and gSOAP runtime with existing (or new) application code

http://www.cs.fsu.edu/~engelen/soap.html

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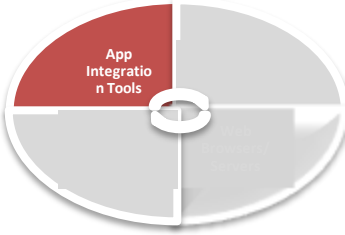
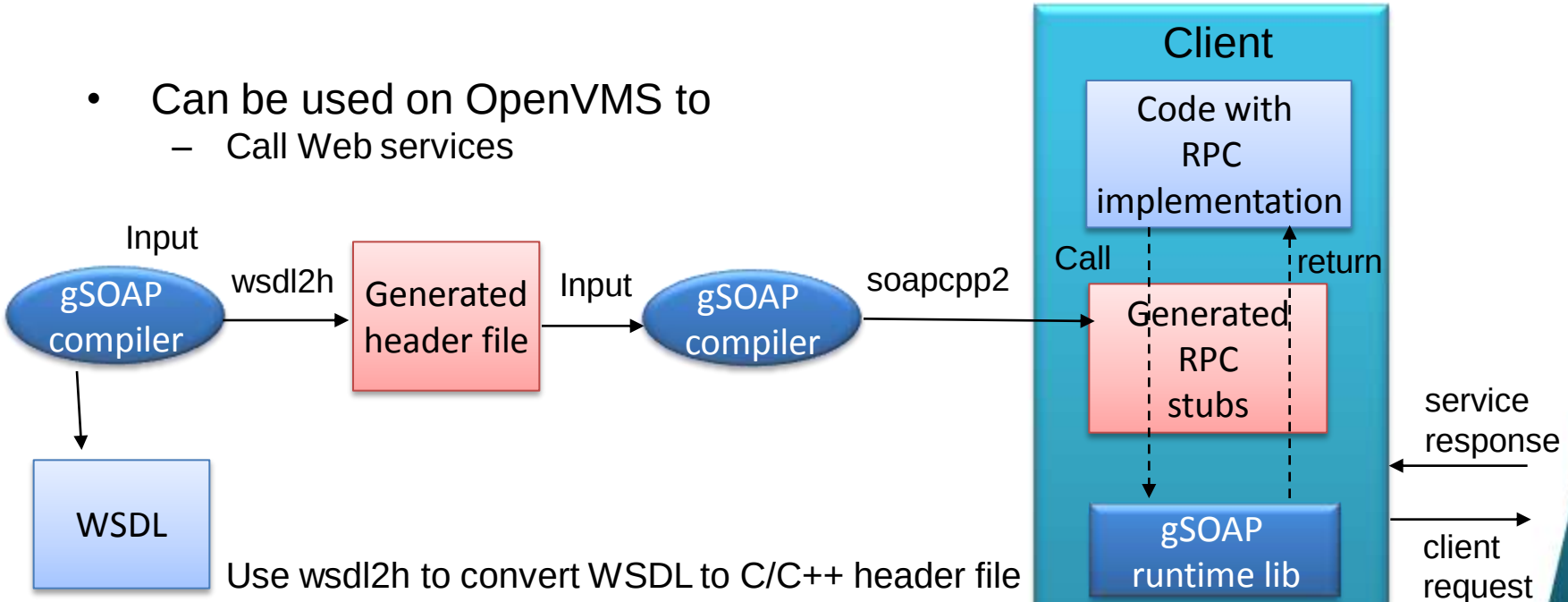
gSOAP – call Web services



- Can be used on OpenVMS to
  - Call Web services



- Use wsdl2h to convert WSDL to C/C++ header file
  - Use soapcpp2 to generate stubs and skeletons
  - Develop client application
  - Link client application with generated code and gSOAP runtime

http://www.cs.fsu.edu/~engelen/soap.html

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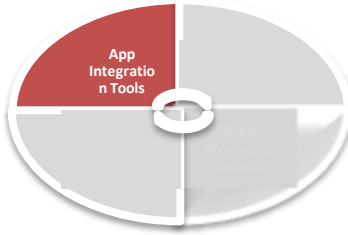
gSOAP on OpenVMS



Major components ported to OpenVMS (Alpha and IA64)

- soapcpp2.exe
- wsdl2h.exe
- Object libraries (runtime libraries)

Current version – 08

Availability

- Download from http://gsoaponopenvms.blogspot.com/

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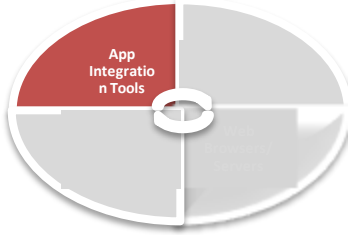
UDDI Client Toolkit



UDDI Client Toolkit

- Universal Description, Discovery and Integration
- Service discovery protocol
- Based on UDDI4J Version 2.0.2

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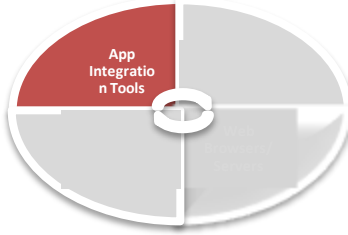
Other Integration Tools



Attunity Connect ®

- Access to data regardless of location
- Simple, easy to use APIs

CONNX® (for RDB)

- Provides secure, read/write access to Oracle RDB databases on VAX, Alpha and Integrity

Oracle Tuxedo ®

- Transaction Processing monitor

TPware/TPware .NET (ACMS Only)

- Ability to make ACMS calls from desktop or web applications

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Common Tools – Compiler & Debugger Update

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Compiler Migration at a glance

	Alpha	Porting	Integrity
Compiler	Version	Action	Version
C	V6.5	Ported	V7.3
C++	V6.5	New from Intel	V7.4
Fortran 77		Not Ported	
Fortran 90	V7.5	Ported	V8.2
COBOL	V2.8	Ported	V3.0
BASIC	V1.5	Ported	V1.7
Pascal	V5.9	Ported	V6.1
Java	V1.4.2	Ported	V6.0
Ada 83		Not Ported	
Ada 95		New from ACT	
Amacro		IMacro Created	
BLISS	V1.011	Ported	V1.012
Macro64		Not Ported	
IAS		Available	V7.0 (7.00.4160)
DIBOL		Ported by Synergex	
Acucorp Cobol		Ported by Acucorp	
PL/I		Not Ported	RTL Available

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HP C For OpenVMS

Current version

- C V7.3 ECO for OpenVMS I64
  - Problem with /POINTER_SIZE =LONG rectified

V7.3 Features

- Multiple versions coexist
- New option for /POINTER_SIZE=LONG (=ARGV) – IA64 Only
- Fixes for issues related to /OPT & /NOOPT

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HP C++ For OpenVMS

Current version

- C++ V7.3 for OpenVMS Alpha

V7.3 - New Features

- Multiple Version Support
- pure_unix – Process wide exception processing mode
- Symbol DEBUGGING in top level unnamed namespaces
- /EXPORT_SYMBOLS and __declspec(dllexport)
- /POINTER_SIZE=LONG=ARGV

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HP C++ For OpenVMS Cont…

Current Version

- C++ V7.4-004 for OpenVMS I64

V7.4-004 - maintenance release

- Fixes for /EXPORT_SYMBOLS
- /DEBUG=ALL & /DEBUG/OPT crash resolved
- Compiler now emit CODEUNREACHABLE
- Correct code generation for names that differed only by case

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HP FORTRAN For OpenVMS

Current version

- Fortran V8.2 for IA64 and Alpha

New Features in V8.2

- /ALIGN=COMMON=PAD_ALIGN_SIZE qualifier
- /ASSUME=64_BIT_STRING_PARAMS
- Bug Fixes

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HP COBOL For OpenVMS

Current version

- COBOL V3.0 for OpenVMS IA64 and Alpha

Bug Fixes in V3.0

- Performance improvements
  - Issue related to compound ADD statement
  - COBRTL performance problem with DCOB$CALLED (COBOL CALL statement on IA64)
  - Packed Decimal support routines on I64

e.g. ADD 1 to CTRL1,CTRL2,CTRL3 slowed down the application considerably compared to using 3 individual ADD statements.

On an average 45% improvement has been observed for some programs using these routines

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HP Pascal for OpenVMS

Current version

- Pascal V6.1 for OpenVMS IA64 and Alpha

New Features in V6.1

- /CDD_QUAD_TYPE=keyword qualifier added
  - Control how %DICTIONARY directive translates quad/octa word sized items in CDD dictionary
- /IDENT=ident-string qualifier added
- /PEN_CHECKINSTYLE=keyword qualifier added

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HP BASIC For OpenVMS

Current version

- BASIC V1.7 for OpenVMS IA64 and Alpha

New Features in V1.7

- No alignment fault for unaligned parameters passed by reference
- Diagnostic messages improvement

BASRTL fixes

- Reduce file-not-found/record-not-found overhead with file I/O on IA64

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HP BLISS For OpenVMS

Current Version

- BLISS V1.012 for IA64
- BLISS V1.011for Alpha

Changes in V1.01*

- The /VERSION qualifier has been added.
- An updated GEM code generator
- Other fixes

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DIBOL

General Information

- Synergex Synergy/DE is DIBOL compiler on OpenVMS, both Alpha and IA64
- Designed to be 100% source code compatible
- Millions and millions of lines of code ported with no changes required

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Ada For OpenVMS

GNAT Pro 6.3.1 (Ada) OpenVMS for IA64 and Alpha

- Support for Ada 2005,Ada83 and Ada 95
- Compatible with HP Ada on OpenVMS Alpha and VAX
- Porting guide for migrating application to Integrity
- Comprehensive GNAT Pro toolset and libraries
- Debugging via OpenVMS Debug
- sales@adacore.com , www.adacore.com

HP Ada

- Ada 83 compiler for OpenVMS Alpha and VAX are mature products
- HP Ada V3.5A for OpenVMS Alpha and VAX

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Debugger Update

Latest Releases

- V8.4
- VMS83A_DEBUG-V0200
- VMS83I_DEBUG-V0200, VMS831H1I_DEBUG-V0200

Fixes

- Performance Improvements
  - Thread view in DECWindows GUI
  - Exiting debugger taking time (Mostly FORTRAN applications)
  - Setting a breakpoint in C++ taking time (I64 only)
  - Many other fixes (Refer Release notes)

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Thank you

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