ClearPath MCP Update

Steven Koss
Distinguished Engineer and Chief Architect
ClearPath MCP Program Office

ClearPath Briefings 2015
Grove/UK
New ClearPath MCP Systems
Libra 4300 / 6300 / 8300
ClearPath Libra 4300 / 6300 / 8300

Platform and Secure Partitioning

- Unisys Intel Platform Complex
  - Fabric-based integration for high performance, reliability and security
- s-Par Secure Partitions enable multiple operating environments
  - ClearPath MCP, Windows, Red Hat and Suse Linux
  - Predictable Performance
  - Secure Partitions have dedicated resources (processor cores, memory, I/O and networking)
Minimum ClearPath Fabric-based Configuration

ClearPath

Enterprise ClearPath MCP Persona

- ClearPath Integrated Stack
- s-Par®
- Unisys Intel Platform Complex

Enterprise Windows / Linux Platform

- W/L
- Mixed Partition Sizes
- Customer Configurable

Internal and/or External Storage

SAN

High Speed Secure Fabric Infrastructure
Mid-range Platform: Libra 4300

- Single-thread performance exceeding the Libra 4200
  - 550 MIPS single thread
  - 2,200 MIPS single Image
- 6GW memory
- (1) to (2) I/O subsystems
- 90000 IO/Sec
- High Availability Option
  - Redundant, parallel ISM’s
  - Redundant PMM modules with transparent failover
- Requires MCP 16.0 software
- s-Par support for multiple secure partitions across platforms
- Operations Server provides high level MCP monitoring and Call Home
Libra 6300 … Fabric-based Infrastructure

Large Platform: Libra 6300

- Performance exceeding the Libra 6200
  - 600 MIPS single thread
  - 4800 MIPS single Image
- 12GW memory
- (2) I/O subsystems
- 180000 IO/Sec
- Standard High Availability implementation
  - Redundant, parallel ISM’s
  - Redundant PMM modules with transparent failover
- Requires MCP 16.0 software
- s-Par support for multiple secure partitions across platforms
- Operations Server provides high level MCP monitoring and Call Home
Libra 8300 … Fabric-based Infrastructure

Libra 8300… Highest Performance for MCP
- Increased Processor Performance
  - Single-thread 700 MIPS
  - Single-image 9000 MIPS
- Growth (Single Image MIPS)
  - 55% vs. Libra 800
  - 88% vs. Libra 600
- MCP Mem 16GW (mirrored)
- Full redundancy
- Transparent Migration

Libra 8300 I/O performance
- Delivers 200,000 IOPS
- 349% IOPS increase vs. Libra 800

High Performance I/O
- 8Gb/16Gb Fibre channel
- 1Gb/10Gb Ethernet

Libra 600/700/800
Application Workload
MCP
Unisys Proprietary Processor platform

Large-scale Transformation

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The ClearPath MCP processing complex is made up of multiple servers, switches and integrated appliances

Interconnected within a fabric based infrastructure

Bringing the ability to tightly integrate Enterprise Windows and Linux (EWL) application partitions within a high speed fabric

Add nodes as needed....
New Libra 470
Libra 470
Program Highlights

• Latest Intel® Xeon® technology – E5 series 8-core processors
• Impressive I/O capabilities (PCIe Gen3)
• High capacity internal storage options (up to 38TB – raw capacity)
• Improved MCP single-image performance (450 MIPs)
• Support for internal Self Encrypting Drives
• Support for MCP Call-Home
• Improved energy efficiency
  – Power management and increased efficiency is estimated to reduce power ~90% to deliver the same level of performance
• Support for MCP 16.0 (and associated new features)
Libra 470
Product Overview

• Follow-on to Libra 460
• Performance
  – 225 MIPs single thread
  – 450 MIPs single image
• Memory – 64GB Total
  – 4GW (32GB) reserved for MCP
• Regulating Performance
  – No USB performance device, using licensing keys
• Single server platform
• Tower or Rack Configuration
• MCP 16.0 only
• Windows 2012 R2
Libra 470 – New Attributes

Benefits Derived from new “Firmware”

- Libra 470 firmware technology based upon the same as Libra 4300/6300/8300
  - MCP Virtual Machine (MCPvm) no longer utilized as the “emulation” / Firmware technology

- New Features for Libra 470:
  - Automated Reporting (Call Home)
  - Darkroom Operation
  - **MCP Software Memory Disk Cache** can be enabled
    - Take advantage of the Memory – Turn on Disk Cache
  - **Completely new I/O Subsystem** (first released on the Libra 4100)
    - Offers multiple overlapped I/O’s to disk, or multiple I/O’s to a LUN
  - Internal **Self-Encrypting Disk Drives**
New Level of Instruction Set

What is e-Mode?

• E-mode is the instruction set for all MCP systems
  – Language independent – i.e. same operator set is used for every compiler

• All previously released MCP platforms supported level Epsilon
  – Software on these systems is compiled with TARGET=LEVEL5

What is e-Mode Level Eta?

• Eta is next level of E-mode
  – Many specialized operators introduced
  – Most Delta and Epsilon operators still valid

• Compilers generate “Eta code” when TARGET=LEVEL6
New Level of Instruction Set

What levels does the Libra 470/4300/6300/8300 support?

- MCP 16.0 system software is at LEVEL6
- Libra 470/4300/6300/8300 CPM(s) can execute both LEVEL5 and LEVEL6 codefiles
- Initial MCP level 57.1 (MCP 16.0)
  - MCP 16.0 is compiled for level Eta and new IO
- Minimum codefile level 55.1 (MCP 14.0)
- Minimum compiler level that supports LEVEL6 code generation is 56.1 (MCP 15.0)
- Recompile of user code for LEVEL6 is not required
# Disk Encryption for Libra 470/4300 / 6300 / 8300

| What is it? | • A new host-based disk encryption product for the MCP operating environment  
• Encrypts all of the data on a disk  
• Encryption and decryption is completely transparent to application programs |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Use Case</td>
<td>• Protect data from unauthorized access and tampering in the event the disk is lost, stolen, or decommissioned</td>
</tr>
</tbody>
</table>
| Target Market | • Clients who have a need to efficiently protect sensitive data stored on disk  
• Need to satisfy requirements of  
  ✓ Legislation  
  ✓ Regulators  
  ✓ Auditors |
# Performance Attributes Comparison - Summary

<table>
<thead>
<tr>
<th>System</th>
<th>Single Thread MIPS</th>
<th>Single Image MIPS</th>
<th>Max Number of CPMs</th>
<th>MCP Memory</th>
<th>I/O Rate (IOs per sec)</th>
<th>Max LUN Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Libra 470</td>
<td>225</td>
<td>450</td>
<td>2</td>
<td>4 GW</td>
<td>25,000</td>
<td>500</td>
</tr>
<tr>
<td>Libra 4300</td>
<td>550</td>
<td>2,200</td>
<td>4</td>
<td>6 GW</td>
<td>90,000</td>
<td>1,500</td>
</tr>
<tr>
<td>Libra 6300</td>
<td>600</td>
<td>4,800</td>
<td>8</td>
<td>12 GW</td>
<td>180,000</td>
<td>3,000</td>
</tr>
<tr>
<td>Libra 8300</td>
<td>700</td>
<td>9,000</td>
<td>14</td>
<td>16 GW</td>
<td>200,000</td>
<td>3,000</td>
</tr>
</tbody>
</table>
Evolution of Fabric Innovation
Coming in 2015

- MCP Integrated Stack
- s-Par
- Unisys Intel Platform Complex

- Windows
- Unused
- Linux

- Windows
- Unused
- Windows
- Linux

- Windows
- Unused
- Windows
- Linux

- Linux
- Unused
- Linux

Additional Processing Nodes
## ClearPath MCP Developer Studio

| What is it? | • Enables development, maintenance, staging and modernization of applications for ClearPath servers, including distributed applications that leverage the fabric infrastructure  
• Initial availability  
  ✓ MCP  
  ✓ EPPs |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary Use Case</strong></td>
<td>• Development and test, User based licensing</td>
</tr>
<tr>
<td><strong>Innovation</strong></td>
<td>• Multi-Partition Based Options</td>
</tr>
<tr>
<td><strong>Pricing Model</strong></td>
<td>• Named User</td>
</tr>
</tbody>
</table>
# ClearPath MCP Express

## What is it?
- Enables students and others to become familiar with and use ClearPath technology
- Initial availability
  - MCP
  - Customer-supplied reference architecture PCs

## Primary Use Case
- Learning and leisure activities, No charge, single user

## Innovation
- Teaching, expanding population of ClearPath skills, improve visibility of Unisys technology innovation

## Pricing Model
- No Charge, Download from Unisys.com
- No Unisys Support
## ClearPath MCP Laptop Replacement

| What is it? | • New program direction to replace the LX Laptop  
• Initial availability  
✓ MCP  
✓ Customer-supplied reference architecture PCs |
| Primary Use Case | • Commercial activities involving demonstration, development, corporate training |
| Innovation | • Software only deliverable on non-Unisys PCs |
| Pricing Model | • Priced, orderable |
2015 Storage Portfolio Overview
## 2015 Storage Product Lineup

*End to End Portfolio for all Storage Requirements*

### ClearPath and Open Systems*

<table>
<thead>
<tr>
<th>Enterprise</th>
<th>Mid Range</th>
<th>VTL</th>
<th>Archival</th>
<th>NAS</th>
<th>DR</th>
<th>Virtualization</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMC VMAX, VMAXe</td>
<td>EMC VNX</td>
<td>DSI VTL</td>
<td>DSI LTO tape, Libraries, autoloaders</td>
<td>Oracle Libraries SL8500/SL3000</td>
<td>Oracle Drives - LTO</td>
<td>EMC RecoverPoint</td>
</tr>
<tr>
<td>EMC Thin Provisioning and FAST SW</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>EMC Array SW</td>
</tr>
</tbody>
</table>

Most ClearPath Storage can be shared between ClearPath and other Server environments

### Open Systems

<table>
<thead>
<tr>
<th>Open Systems</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EMC DataDomain</td>
<td>EMC Atmos</td>
<td>EMC VNX</td>
</tr>
<tr>
<td>EMC Avamar</td>
<td></td>
<td>EMC V-Plex</td>
</tr>
<tr>
<td>EMC Isilon</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
V-MAX Tiered Storage Options

Tiering Within and Across Arrays

SOFTWARE-BASED TIERING CAPABILITIES
- Cache Partitioning
- ControlCenter Symmetrix Optimizer
- Quality of Service Management
- Virtual LUN Technology
- Virtual Provisioning

PLATFORM-BASED TIERING CAPABILITIES
- New Flash Drives
- First and Only High-end Array with Flash Drive Technology
- Breaks the Performance Barrier and Reinvents High End Storage

Advanced functionality to optimize storage tiering

Best of-breed storage systems and technology
VNX Flash and FAST Technology

Highest performance and capacity efficiency - automatically!

• Hot data on fast Flash SSDs for high data activity and cold data on dense disks for data aging

Real-time caching with FAST Cache

• FAST Cache continuously ensures that the hottest data is served from high performance FLASH SSDs

• FAST VP (Virtual Pools)* optimizes storage pools automatically, ensuring that active data is being served from SSDs, while cold data is moved to lower cost disk tiers

• FAST VP for block and file, optimize VNX for minimum TCO

• Together they deliver a fully automated FLASH 1st storage strategy for optimal performance at the lowest cost attainable

• Monitor and Tune the whole system with the complementary Unisphere QoS Manager and Unisphere Analyzer

* Not available for VNX5100.
# Unisys VTL Solutions Capability Comparison

<table>
<thead>
<tr>
<th>Capability</th>
<th>DSI VTL</th>
<th>Data Domain VTL</th>
</tr>
</thead>
<tbody>
<tr>
<td>ClearPath MCP Support</td>
<td>⬤</td>
<td>⬤</td>
</tr>
<tr>
<td>Fibre Channel Host Interface</td>
<td>⬤</td>
<td>⬤</td>
</tr>
<tr>
<td>Replication over IP</td>
<td>⬤</td>
<td>⬤</td>
</tr>
<tr>
<td>Backend Physical Tape</td>
<td>⬤</td>
<td>⬤</td>
</tr>
<tr>
<td>Encryption of exported volumes</td>
<td>⬤</td>
<td>⬤</td>
</tr>
<tr>
<td>Tape Consolidation (Stacking)</td>
<td>⬤</td>
<td>MCP Stacking</td>
</tr>
<tr>
<td>VTL Agent for Host Integration</td>
<td>⬤</td>
<td>⬤</td>
</tr>
<tr>
<td>High Availability / Failover</td>
<td>⬤</td>
<td>⬤</td>
</tr>
<tr>
<td>ClearPath Data De-Duplication</td>
<td>⬤</td>
<td>⬤</td>
</tr>
<tr>
<td>64,000 Virtual Tape Drives</td>
<td>⬤</td>
<td>⬤</td>
</tr>
<tr>
<td>250,000 Virtual Tape Media</td>
<td>⬤</td>
<td>Unlimited</td>
</tr>
</tbody>
</table>

**KEY**
- ⬤ = standard
- ⬤ = optional
- ⬤ = not offered
Clear Path MCP Release 17.0

April 29, 2015
## ClearPath MCP Release Schedule

<table>
<thead>
<tr>
<th>Release</th>
<th>Release Date</th>
<th>End of Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCP 14.0</td>
<td>April 2012</td>
<td>October 2015</td>
</tr>
<tr>
<td>MCP 15.0</td>
<td>April 2013</td>
<td>October 2016</td>
</tr>
<tr>
<td>MCP 16.0</td>
<td>April 2014</td>
<td>October 2017</td>
</tr>
<tr>
<td>MCP 17.0</td>
<td>April 2015</td>
<td>…. (Dates to be determined)</td>
</tr>
<tr>
<td>MCP 18.0</td>
<td>Dates to be determined</td>
<td></td>
</tr>
<tr>
<td>MCP 19.0</td>
<td>Dates to be determined</td>
<td></td>
</tr>
</tbody>
</table>

Future dates are subject to change
MCP Release Timelines

-New-

Old: One major release a year
42 month support lifecycle

New: One major release every 24 months (2 years)
60 month (5 years) support lifecycle

Benefit:
- Longer release life
- Can still skip a release (waiting up to 1 year after its initial release)
## MCP 17.0 Key Benefits

<table>
<thead>
<tr>
<th>Applications</th>
<th>Security</th>
<th>Data Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Business process integration</td>
<td>• Protect sensitive data</td>
<td>• Operations skills issues and costs</td>
</tr>
<tr>
<td>• Improve developer productivity</td>
<td>• Audit and compliance automation</td>
<td>• Application availability</td>
</tr>
<tr>
<td>• Improve end-user productivity</td>
<td></td>
<td>• Efficient data transfer</td>
</tr>
<tr>
<td>• Support business growth</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Applications
Development and Modernization
## Key Benefits

<table>
<thead>
<tr>
<th>Business Process Integration</th>
<th>Integrate business processes both within an organization and between organizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve Developer Productivity</td>
<td>Improve developer productivity by using contemporary tools and technologies</td>
</tr>
<tr>
<td>Improve End-User Productivity</td>
<td>Improve the productivity of application end-users without having to modify existing application logic</td>
</tr>
<tr>
<td>Support Business Growth</td>
<td>Increase the scalability of mission-critical applications and databases to support business growth</td>
</tr>
</tbody>
</table>
# Business Process Integration

## Key Benefit

<table>
<thead>
<tr>
<th>How It Is Delivered</th>
<th>Product</th>
<th>New Capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connectorivity Services</td>
<td><em>New product</em></td>
<td>• Enables use of the Infiniband interconnect on new ClearPath servers</td>
</tr>
<tr>
<td>XML Parser</td>
<td></td>
<td>• Convert XML to COBOL 01 records</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Use by EAE applications</td>
</tr>
<tr>
<td>HTTP Client</td>
<td></td>
<td>• Use by EAE applications</td>
</tr>
<tr>
<td>Binder</td>
<td></td>
<td>• Export library interface in XML format</td>
</tr>
</tbody>
</table>
## Connectivity Services

| What is it?                                                                 | • Designed to enable applications and products to use the Infiniband interconnect on fabric-enabled ClearPath servers  
|                                                                          | • Uses Ethernet when Infiniband is not available – transparently to the application  
|                                                                          | • APIs for MCP and Windows applications |
| Who should use it?                                                        | • Developers with requirements to leverage both MCP-based and Windows-based resources in applications |
| Packaging                                                                 | • Bundled in all ClearPath operating environment packages |
Connectivity Services Architecture

ClearPath Partition

- Application
- Product
- Connectivity Services
- Ethernet Network
- InfiniBand

Windows Partition

- Application
- Product
- Connectivity Services
- InfiniBand
- Ethernet Network
## Connectivity Services Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Message Framing Service</strong></td>
<td>• Designed to ensure that applications receive entire messages</td>
</tr>
</tbody>
</table>
| **Authentication Service** | • Enables server applications to validate access from clients  
• Single sign on is an option  
• Currently uses NTLMv2                                                                                                                                     |
| **Security Service**   | • Designed to protect sensitive data from unauthorized access or tampering  
• Uses TLS or SSL                                                                                                                                                    |
| **MCP APIs**           | • Available in ALGOL, C, COBOL74, COBOL85, and NEWP                                                                                                                                                       |
| **Windows APIs**       | • Available in C# and C++                                                                                                                                                                                   |
# Improve Developer Productivity

**Key Benefit**

Improve developer productivity by using contemporary tools and technologies

<table>
<thead>
<tr>
<th>How It Is Delivered</th>
<th>Product</th>
<th>New Capabilities</th>
</tr>
</thead>
</table>
| Relational Database Server for ClearPath MCP | | • ODBC driver  
• Stored procedures  
• SQL functions  
• Other enhancements |
| ClearPath MCP IDE for Eclipse Phase 17 | | • Eclipse 4.4/4.2 (Luna) support  
• Java 8 support  
• View MCP printer backup files in Eclipse  
• View MCP log records in Eclipse  
• Editing ease-of-use and productivity improvements |
Relational Database Server for ClearPath MCP

Introduced on MCP 16.0

- Create, update and access relational databases
- Use SQL to update and access DMSII databases
- Leverages a mature data management infrastructure developed over 40+ years
- Separately orderable and priced
Data Management Architecture

Relational Database Server for ClearPath MCP

Common data management infrastructure
Data access routines - Database utility functions
Audit - Recovery

Enterprise Database Server for ClearPath MCP (DMSII)

Relational
Relational
DMSII
DMSII
ClearPath MCP IDE for Eclipse

What is it?
- Open source development environment for MCP 3GL development
- Workstation-based

Why use it?
- Reduces the time for new MCP developers to become productive
- A more contemporary environment for Programmer’s Workbench users

What’s new?
- Eclipse 4.4/4.2 (Luna) support
- Java 8 support
- View MCP printer backup files in Eclipse
- Analyze MCP log records in Eclipse
- Ease-of-use and productivity improvements
## Eclipse Ease-of-Use and Productivity Improvements

<table>
<thead>
<tr>
<th>Feature</th>
<th>What it does</th>
</tr>
</thead>
</table>
| COBOL: calculate the size of a variable or group of variables | • Avoid the time and risk of human error associated with manual calculations  
• Match the value with its redefinition or equivalent schema definition |
| Create a copy of a merged symbol file              | • Save the merged of content of a patch and its symbol file to a user-defined location |
| Search for keywords across all of the files in project | • Avoid having to search each file separately                                |
## End-User Productivity

<table>
<thead>
<tr>
<th>Key Benefit</th>
<th>Improve the productivity of application end-users without having to modify existing application logic</th>
</tr>
</thead>
</table>

### How It Is Delivered

<table>
<thead>
<tr>
<th>Product</th>
<th>New Capabilities</th>
</tr>
</thead>
</table>
| ePortal 6.1                 | • Support for new ePortal Enterprise  
• New capabilities for  
  ✓ Application capture and modeling  
  ✓ Web and mobility  
  ✓ Services and SOA  
  ✓ Deployment and runtime |
| Enterprise Output Manager 12.0 | • E-mail message body personalization  
• DDA Designer ease-of-use enhancements  
• Configuration Explorer find and replace options |
What is ClearPath ePortal?

Interface Modernization

A single implementation
- Modernizes user interfaces
- Services multiple devices
- Integrates applications
Without MCP application changes!

Open Development using Visual Studio

ClearPath Applications

What is ClearPath ePortal?

Browser
Web Enablement

Web Services (SOA)

Smart Phone / Tablet
Mobile Device Integration
New Fourth Generation ePortal Enterprise

What is being introduced?

• A new ClearPath fully redundant ePortal Enterprise platform
  – based on industry-standard servers with automated local failover
  – no single-point-of-failure

• A new ePortal software Release 6.1
  – Required for new ePortal Enterprise
  – Also available for currently supported products (Enterprise, Business)
  – Available for download March 31, 2015

• Software Defined Architecture via Virtualization
  – Replaces blade architecture
  – Soft Partitions for incremental performance additions

• Additional scalability
New Enterprise Architecture (Physical)
Flexible Clustering (Logical Architecture)

- Deploy applications and software to Web Clusters
- Point-and-Click provisioning of Web Clusters
- High Availability Cluster configuration
- Add Web Partitions as needed
- Provision/Re-provision “on-the-fly”
New ePortal Enterprise

What is not changing?

• Management environment – identical features and operations processes
• Mission-critical attributes – Resiliency, availability, scalability, recoverability
• Interfaces from ClearPath applications to ePortal
• The power to enable rapid and cost-effect modernization of client applications
• Transparent migration to a new platform and new software release
• Automation features incorporated at every step from Development through Deployment and Management
Delivering “Edge-of-the-Market” SW Content
Release 6.1

Application Capture and Modeling
  Improvements to the View-Model Message Design
  Integrated Bootstrap components for Multi-Device applications

Web and Mobility
  Improved Unisys Multi-Device Cloud Build Service
  Mobile and service project templates
  Multi-Device Mobile App Simulator
  Support for Visual Studio Universal Apps
  Support for flexible application scaffolding
  Support for multi-device development for Windows Phone 8.1 and tablets and PCs running

Windows 8.1
  Support for Cordova Community Plug-Ins for Multi-Device applications
  Integrated access to community plug-in directories from within Visual Studio
  Automatic localization resource file creation for MVC applications

Services and SOA
  Flexible and customizable service scaffolding for WCF SOAP service generation

Deployment and Runtime
  Improved SSL/TLS certificate encryption support and management
  Support for the Network Load Balancing (NLB) Affinity option NONE
  DNS resolution for outbound services communication
  Support for the Microsoft .NET Framework 4.5.2
Support Business Growth

| Key Benefit | Increase the scalability of mission-critical applications and databases to support business growth |

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<thead>
<tr>
<th>How It Is Delivered</th>
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<th>New Capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MCP</td>
<td>Support for disks with 4K sector sizes</td>
</tr>
<tr>
<td></td>
<td>Databases</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other products</td>
<td></td>
</tr>
</tbody>
</table>
## Security

### Key Benefits

<table>
<thead>
<tr>
<th>Protect Sensitive Data</th>
<th>Updated products designed to help protect sensitive data from unauthorized access and tampering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit and Compliance Automation</td>
<td>Automation of audit and regulatory compliance activities using new and updated capabilities</td>
</tr>
</tbody>
</table>
# Protect Sensitive Data

<table>
<thead>
<tr>
<th>Key Benefit</th>
<th>Updated products designed to help protect sensitive data from unauthorized access and tampering</th>
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</thead>
<tbody>
<tr>
<td><strong>Product</strong></td>
<td><strong>New Capabilities</strong></td>
</tr>
<tr>
<td>Transaction Server – CCF</td>
<td>• Enable applications to query client network addresses</td>
</tr>
<tr>
<td>Security Center</td>
<td>• Support multiple public keys per usercode for SSH authentication</td>
</tr>
<tr>
<td></td>
<td>• SSH keyscan</td>
</tr>
<tr>
<td></td>
<td>• Option to force password change on first use</td>
</tr>
<tr>
<td></td>
<td>• Unwrap command granulated privilege for handling hazardous files</td>
</tr>
<tr>
<td>Web Transaction Server</td>
<td>• Allow users to change passwords from a Web browser</td>
</tr>
<tr>
<td>Enterprise Output Manager 12.0</td>
<td>• Web Assistant hides file names in URLs</td>
</tr>
</tbody>
</table>
## UNWRAPRESTRICT Granulated Privilege

### Background
- By default, the UNWRAP command marks system files, compilers, backup files, and code files as restricted.
- A security administrator or a privileged user can override this default by having UNWRAP unrestrict these files.

### What’s new on MCP 17.0?
- UNWRAPRESTRICT granulated privilege for:
  - Users
  - Codefiles
- A security administrator can delegate this privilege to specific “regular” users.
- Enables:
  - Use RESTRICTED = FALSE during UNWRAP operations
  - Use the Mark Program (MP) command to mark code files as non-restricted
- Applies to:
  - WFL UNWRAP statement
  - MCP_WRAPPER and MCP_FILEWRAPPER interfaces
## Audit and Compliance Automation

**Key Benefit**
New and updated capabilities designed to help automate audit and regulatory compliance activities

<table>
<thead>
<tr>
<th>How It Is Delivered</th>
<th>Product</th>
<th>New Capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Software Inventory Assessment Utility</td>
<td>• Add information to the system log following a memory dump</td>
</tr>
<tr>
<td></td>
<td>Locum Safe &amp; Secure</td>
<td>• AdminDesk’s new Configuration Wizard makes installation simpler and more flexible</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Improved customization</td>
</tr>
<tr>
<td></td>
<td>Locum SafeSurvey</td>
<td>• Extension to Guardfiles report</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Multi-family browse and import of SSV files</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Reports available in PDF format</td>
</tr>
<tr>
<td></td>
<td>Locum RealTime Monitor</td>
<td>• Advanced filtering to keep alerts focused</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Check for updates of the latest dashboard</td>
</tr>
<tr>
<td></td>
<td>Locum SecureAudit</td>
<td>• Multi-family browse and import of SCA files</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Reports available in PDF format</td>
</tr>
</tbody>
</table>
Business applications do not provide platform protection.
## Locum 360 Degree Security & Compliance Tools
### What’s new?

<table>
<thead>
<tr>
<th>ADMINISTER</th>
<th>LOCUM Safe and Secure</th>
<th>LOCUM SafeSurvey</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Centralized security administration</td>
<td>Pro-active security assessment and risk identification</td>
</tr>
<tr>
<td></td>
<td>• AdminDesk’s new Configuration Wizard makes installation simpler and more flexible</td>
<td>• Extension to Guardfiles report: invalid accesscodes and groupcodes and missing programs</td>
</tr>
<tr>
<td></td>
<td>• Improved customization</td>
<td>• Multi-family browse and import of SafeSurvey report (SSV) files</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ALERT</th>
<th>LOCUM RealTime Monitor</th>
<th>LOCUM SecureAudit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pro-active real-time alerting</td>
<td>Powerful, time saving, audit reporting</td>
</tr>
<tr>
<td></td>
<td>• Advanced filtering to keep alert traffic focused based on client-specified criteria</td>
<td>• Multi-family browse and import of SecureAudit report (SCA) files</td>
</tr>
<tr>
<td></td>
<td>• Check for Updates option to get the latest dashboard</td>
<td>• Reports available in PDF format</td>
</tr>
</tbody>
</table>
Data Center
Optimized Infrastructure
# Data Center

<table>
<thead>
<tr>
<th>Key Benefits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operations Skills Issues and Costs</strong></td>
<td>Reduce requirements for MCP-specific operations skills and related costs</td>
</tr>
<tr>
<td><strong>Application Availability</strong></td>
<td>Increase availability of mission-critical applications to end users</td>
</tr>
<tr>
<td><strong>Efficient Data Transfer</strong></td>
<td>Move large quantities of data across networks more efficiently</td>
</tr>
</tbody>
</table>
# Operations Skills Issues and Costs

## Key Benefit
Reduce requirements for MCP-specific operations skills and related costs

## How It Is Delivered

<table>
<thead>
<tr>
<th>Product</th>
<th>New Capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>dbaTOOLS</td>
<td>• Automated on-line garbage collection</td>
</tr>
<tr>
<td>Workload Management for ClearPath MCP</td>
<td>• Programmatic access to MIPS month-to-date value</td>
</tr>
<tr>
<td></td>
<td>• Usability improvements</td>
</tr>
<tr>
<td>Operations Sentinel 15.0</td>
<td>• Alert scheduling flexibility</td>
</tr>
<tr>
<td></td>
<td>• Silent, automated installation of Windows, Linux, and Unix agents</td>
</tr>
<tr>
<td></td>
<td>• SNMP v2 support</td>
</tr>
<tr>
<td></td>
<td>• Ease of use enhancements</td>
</tr>
</tbody>
</table>
### dbaTOOLS
Automated On-line Garbage Collection of Index Sequential Sets

<table>
<thead>
<tr>
<th>Why do it?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Remove wasted space</td>
<td></td>
</tr>
<tr>
<td>• Reduce the risk of LimitErrors due to</td>
<td></td>
</tr>
<tr>
<td>‒ Wasted space</td>
<td></td>
</tr>
<tr>
<td>‒ Performance problems</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How it works</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sets prioritized based upon LimitError potential, loading and levels</td>
<td></td>
</tr>
<tr>
<td>• Parameters can be set to control the analysis</td>
<td></td>
</tr>
<tr>
<td>• User can decide</td>
<td></td>
</tr>
<tr>
<td>‒ What sets to skip</td>
<td></td>
</tr>
<tr>
<td>‒ Maximum number of sets to garbage collect</td>
<td></td>
</tr>
<tr>
<td>‒ Maximum simultaneous garbage collections</td>
<td></td>
</tr>
<tr>
<td>• Start manually or set to start at a user-selected time</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Availability</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Requires</td>
<td></td>
</tr>
<tr>
<td>‒ dbaTOOLS Analyzer</td>
<td></td>
</tr>
<tr>
<td>‒ dbaTOOLS Monitor</td>
<td></td>
</tr>
</tbody>
</table>
dbaTOOLS
Automated On-line Garbage Collection of Index Sequential Sets

![Image of dbaTOOLS interface showing analysis results]

- **Total Nbr of Sets:** 621
- **Last Date GC Run:** 2/28/2015 10:55:34 AM
- **Nbr of Priority Sets for GC:**
  - High: 6
  - Med: 131
  - Low: 5
- **Nbr of GC's to Run Simultaneously (1 - 10):** 3
- **Nbr of Sets to GC (1 - ALL):** 50
- **GC Start Time:** 3/1/2015 12:53:17 PM

[Options to Analyze Completed, Cancel, Continue]
## Operations Sentinel 15.0 Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Key Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alert Scheduling Flexibility</td>
<td>• Enables an administrator to skip the action execution for the specified alert types during a specified time frame</td>
</tr>
<tr>
<td>Automated installation of Windows, Linux, and Unix agents</td>
<td>• Enables administrators to install the Windows, Linux and Unix agent software on multiple systems in one step</td>
</tr>
<tr>
<td>SNMP v2 support</td>
<td>• Operations Sentinel can receive the SNMP v2 trap as alert event report</td>
</tr>
<tr>
<td>Autoaction Database Manager (ADBM) Editor enhancements</td>
<td>• Provide a richer GUI experience to the user by including Visual editing features</td>
</tr>
<tr>
<td></td>
<td>• Easier and more productive database development</td>
</tr>
<tr>
<td>Save and Cancel options for Topology window</td>
<td>• Users get refined user interface and thus an easy and quick option to customize the topology</td>
</tr>
</tbody>
</table>
## Application Availability

<table>
<thead>
<tr>
<th>Key Benefit</th>
<th>Increase availability of mission-critical applications to end users</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>How It Is Delivered</strong></td>
<td><strong>Product</strong></td>
</tr>
</tbody>
</table>
| | Unisys Business Continuity Accelerator | • Integration with Disk Encryption to support failover with encrypted disks  
• Automated management of EMC SRDF  
• Ease-of-use improvements |
Business Continuity Accelerator (BCA)

What is it?
• Accelerates and automates DR operations
• Relocates a workload and associated data from a primary server to an alternate server
• Restarts a workload on an alternate server

Why use it?
• Reduce downtime
• Reduce the risk of human error when executing a BC plan
# Business Continuity Accelerator
## Failover with Encrypted Disks

| What is Disk Encryption? | • Designed to protect data from unauthorized access and tampering in the event a disk is lost, stolen, or decommissioned  
| | • Separately orderable and priced  
| | • Available on Libra 470, 4300, 6300, and 8300 servers |

| Failover with Encrypted Disks | • BCA automates  
| | ✓ Detection of disk encryption keys including changes  
| | ✓ Synchronization of keys across hosts  
| | • Operator notification and intervention only if a backup server can’t decrypt encrypted disks |
## Business Continuity Accelerator
### Automated Management of EMC SRDF

### What is it?
- BCA automatically creates storage scripts for standard SRDF configurations
- Transfer the script to the SRDF storage manager
- BCA will begin using the new script as soon as it is available on the storage manager

### Why use it?
- Reduce the need for specialized storage management skills
- Speed up BCA implementation

### Consideration
- BCA makes certain assumptions when creating scripts
- A review by your storage team is recommended
## Business Continuity Accelerator
### Additional New Features

<table>
<thead>
<tr>
<th>What’s new?</th>
<th>Why use it?</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCA uses SSL to secure it’s heartbeat and storage management communication</td>
<td>Protect sensitive data such as disk encryption keys and system information from unauthorized access and tampering</td>
</tr>
<tr>
<td>BCA system command</td>
<td>Simplifies passing commands to BCA software</td>
</tr>
<tr>
<td></td>
<td>Avoid using “AX” to pass commands</td>
</tr>
<tr>
<td>Network resource groups</td>
<td>Can group network resources with application groups and storage resources to adapt to site-specific requirements</td>
</tr>
</tbody>
</table>
## Efficient Data Transfer

<table>
<thead>
<tr>
<th>Key Benefit</th>
<th>Move large quantities of data across networks more efficiently</th>
</tr>
</thead>
</table>

### How It Is Delivered

<table>
<thead>
<tr>
<th>Product</th>
<th>New Capabilities</th>
</tr>
</thead>
</table>
| Data Compression | • Compression of DMSII database backup files, audit files and internal large objects (ILOBs)  
                      • API for use by application programs   |
Data Compression

Reduce data transfer times on networks and data storage requirements

- Introduced on MCP 16.0
- Especially useful when
  - Using slower networks
  - Sending data to multiple locations
- Uses a variant of the LZW compression algorithm
- Text is more compressible than binary data
- Test with a small sample of data before production deployment
- Separately orderable and priced
# Data Compression Capabilities

<table>
<thead>
<tr>
<th>What can be compressed?</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRAP container files</td>
<td>• Also requires a WRAP File Enabler license</td>
</tr>
<tr>
<td></td>
<td>• Available on MCP 16.0</td>
</tr>
<tr>
<td>Selected database components</td>
<td>• <strong>New</strong> on MCP 17.0</td>
</tr>
<tr>
<td>✓ Backup files</td>
<td>• API available in ALGOL and NEWP</td>
</tr>
<tr>
<td>✓ Audit files</td>
<td>• <strong>New</strong> on MCP 17.0</td>
</tr>
<tr>
<td>✓ Internal large objects (ILOBs)</td>
<td></td>
</tr>
<tr>
<td>Application data</td>
<td></td>
</tr>
</tbody>
</table>

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## Data Compression Product Offerings

<table>
<thead>
<tr>
<th>Product</th>
<th>Server Availability</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firmware-Based Compression</td>
<td>Libra 470</td>
<td>• Implemented in firmware</td>
</tr>
<tr>
<td></td>
<td>Libra 4300</td>
<td>• Designed to minimize additional MCP CPU overhead</td>
</tr>
<tr>
<td></td>
<td>Libra 6300</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Libra 8300</td>
<td></td>
</tr>
<tr>
<td>Software-Based Compression</td>
<td>Earlier MCP servers that support MCP 16.0</td>
<td>• Implemented in the MCP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• CPU intensive</td>
</tr>
</tbody>
</table>

Complete interoperability between both products
Summary

• ClearPath MCP Release 17.0 is available today

• It is designed to help you
  – Develop and modernize your applications
  – Keep your data secure
  – Optimize the operation of your data center

• ClearPath services are available to help you
Product Support Information Improvements
Product Support Information Improvements

Unisys recognizes the need for users of mission critical systems to be aware of and proactive with product issues

- End users need 7x24x365 availability
- Pressure from executives, auditors, and regulators

What we are doing

- Adding information to problem descriptions (PLEs) on support.unisys.com
  - Criticality assessment
  - CVSS scoring – for network and security vulnerabilities
- Offering weekly PLE reports via e-mail subscription
Criticality Assessments of PLEs

**Criticality**

- A LOW to HIGH assessment of the severity of the issue based upon its
  - Impact
  - Probability
- Based on simple threat analysis techniques
- General in nature

It is important for you to assess each issue for your particular environment
CVSS Scoring of PLEs

- CVSS = Common Vulnerability Scoring System
- Rating system focused on network and security vulnerability issues
- Widely used by many vendors in the industry
- Scores have a range of 0-10, with higher scores indicating a higher level of severity
- Used only for PLEs describing network and security vulnerabilities
- New PLE fields
  - CVSS Base Score (0-10)
  - Security Type = VULNERABILITY
Weekly PLE Reports

- Sent weekly via e-mail
- Sorted by product group and criticality
- Subscribe on support.unisys.com
  - Your User Profile
  - Alert Registration

### Weekly PLE Report for ClearPath MCP

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Product</th>
<th>Status</th>
<th>Criticality</th>
</tr>
</thead>
<tbody>
<tr>
<td>19032327</td>
<td>DMSII</td>
<td>RESOLVED</td>
<td>Medium-High</td>
</tr>
<tr>
<td></td>
<td>DASL Compiler Incorrectly Bumps Update Level For Modeled Database</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Affected Levels: 056.1, 056.1A, 057.1, 057.1A, 057.1XL, 058.1, 058.1A, 059.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19030385</td>
<td>BINDER</td>
<td>RESOLVED</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>BOUNDS ERROR When Processing Formal Names</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Affected Levels: 056.1, 056.1A, 057.1, 057.1A, 057.1XL, 058.1, 058.1A, 059.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19030016</td>
<td>DMSII</td>
<td>RESOLVED</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Record Count for a Set Does Not Match Dataset Count</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Affected Levels: 055.1, 055.1A, 056.1, 056.1A, 057.1, 057.1A, 057.1XL, 058.1, 059.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19031136</td>
<td>DMSII</td>
<td>RESOLVED</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Fatal Stack Overflow Attempting to Close the Database</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Affected Levels: 055.1, 055.1A, 056.1, 056.1A, 057.1, 057.1A, 057.1XL, 058.1, 059.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18562890</td>
<td>FTP</td>
<td>RESOLVED</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Make FTP More Resilient to MCAPI and SSL Termination</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Affected Levels: 053.1, 055.1, 055.1A, 056.1, 056.1A, 057.1, 057.1A, 057.1A, 058.1, 058.1A, 059.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19023107</td>
<td>MCP-SQL</td>
<td>RESOLVED</td>
<td>Medium-Low</td>
</tr>
<tr>
<td></td>
<td>System Integrity Failure: Large Concatenation operands in INSERT</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Affected Levels: 015.0, 015.0A, 016.0, 016.0A, 017.0, 018.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19030891</td>
<td>PRINTS</td>
<td>RESOLVED</td>
<td>Medium-Low</td>
</tr>
<tr>
<td></td>
<td>PS MODIFY Makes Print Request State Vulnerable To Corruption</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Affected Levels: 055.1, 055.1A, 056.1, 056.1A, 057.1, 057.1A, 058.1A, 059.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19028453</td>
<td>ALGOL</td>
<td>RESOLVED</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Fix XREF Files For Nested Procedures In STRUCTURE BLOCK</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Affected Levels: 056.1, 056.1A, 057.1, 057.1A, 057.1XL, 058.1, 058.1A, 059.1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Thank You