Product Benefits by Major Versions

Below you will find a guide to help summarize the most significant features and enhancements made to Rocket's MultiValue releases over time. Please click on the product you are interested below:

Contents

U2 Family of Products

UniVerse

Yellow color code hightlights significant feature changes. We are continuously working out potential kinks with specific customer application functionality.

Version	Component / Feature	Benefit	Date
12.1	Enhanced Auditing - Change Data Capture (CDC) - CDC lets you see exactly what changed in a record, the original value and what it was changed to.	Data change is a requirement of security regulations (like PCI and HIPAA). Some of these regulations require that the change itself be logged, not just the fact that a change was made to a file.	July 2 2019
12.1	Recoverable file system (RFS) - RFS maintains a persistent change log (journal) so that when an unexpected outage takes place the file system can always **quickly restore** to the last complete transaction.	RFS ensures full data integrity. Every database transaction is committed to the journal prior to being written to disk, allowing full replay of system events. RFS automates fast restoration. It can be costly for a business to weed out and repair damaged files. RFS avoids lengthy manual intervention for file repairs.	July 2 2019
12.1	Rearchitect the core database processing engine - A "System Buffer" was added to the core database processing engine. The Buffer manages file updates and stores frequently accessed files.	Reading from memory versus disc means end-users experience faster response time, thus supporting higher levels of transaction processing.	July 2 2019
12.1	Intelligent Queue Manager for replication updates. Queue manager recognizes when there are multiple updates in the queue for the same file. Rather than write each change to disk, only the most recent change is written	Improved performance	July 2 2019

12.1	Field-level updates in the replication process. For customers who use HA/DR, only updated fields are written to replication logs instead of entire records.	Replication is faster and disk space usage is decreased. Replication protects your system in case of disaster, system outage. Replication optimization is important and ensures overall application performance is not negatively impacted.	July 2 2019
- 12.1	Intelligent Query Optimization - After a user writes a SQL Query statement, the processing engine evaluates the statement and sequence, refines the order, then executes the query.	Queries return results 10 – 26% faster. Existing queries that use indexed fields will run quicker. This applies to program code that performs queries or reports. This benefit does not require any code changes.	July 2 2019
12.1	JSON Format for Retrieve – The standard query language has been extended to provide output to JSON format	By extending data output to JSON we've expanded the accessibility of MV data to more applications, markets, functionality.	July 2 2019
11.3	Python Support (Windows/Linux only)	Attract and retain new development talent for your MultiValue applications. Easily extend UniVerse applications with a simple and easy to learn object-oriented programing language. Prototype new features and applications quickly.	20-Oct-16
11.3	Audit Logging Performance	In addition to the features delivered in 11.2, 11.3 now offers a new streamlined audit architecture and processes, and supports sequential file logs for a significant performance improvement.	20-Oct-16
11.3	(HADR) U2 Replication Enhancements	1) Cross-Group Transaction (CGT) performance improvements. 2) Delayed Standby Replication - keep the subscriber a defined time period behind publisher to protect against malicious changes and recover to a safe point in the past. 3) Replication Pacing - Publisher adjusts speed to keep pace with subscriber which prevents overflow and increases reliability	20-Oct-16
11.3	FIPS 140-2	Arm your business to meet FIPS 140-2 security and compliance regulations when certifying your own application. (HIPAA, HITECH, SOX, PCI-DSS)	20-Oct-16

11.3	UniVerse Credential Manager	Simplify Single Sign On (SSO) access to the database server. In addition to LDAP, or OS- level authentication, UniVerse now offers its own credential manager.	20-Oct-16
11.3	OpenSSL Upgrades & Agility	OpenSSL libraries are released often and you need to be able to easily protect your business from the latest security threats. UniVerse has been enhanced to easily accommodate future OpenSSL updates without having to update UniVerse itself.	20-Oct-16
11.3	NLS / I18n Support (National Language Support)	Enable applications to be globalized using the latest modern techniques and standards to support multiple languages. The BDT Editor, Command Prompt, and Debugger now support NLS.	20-Oct-16
11.3	IPv6	Be ready for the Internet of Things! As the world is running out of IPv4 Internet addresses for all web-enabled devices, IPv6 compatibility provides the ability to create more IP addresses for years to come, and utilizes a more secure data pack in the process. UniVerse is dual-stack capable IPv4 / IPv6.	20-Oct-16

11.3	64-bit Architecture (no 32-bit ports)	Take advantage of the most current hardware without the memory limitations posed by 32-bit software! Eliminate the need to maintain a mixed-architecture environment and see a potential performance benefit when the database is fully cached in memory.	20-Oct-16
11.2	Audit Logging	Manage the auditing requirements of regulations such as HIPAA/HITECH and Sarbanes-Oxley in addition to internal auditing. Once licensed and configured, UniVerse always audits certain security related events. UniVerse ensures that the audit log files are valid and ready at startup, and these hashed log files are protected by the system.	14-Nov-13
11.2	U2 Dynamic Objects	Easily create and consume Web Service data in both JSON and XML formats.	14-Nov-13
11.2	Account Based Licensing	Manage database licenses for a multi-account based environment by allocating licenses to each account to ensure availability and access based on service level agreements. For example, this makes it easier to manage multi-tenancy in a SaaS environment	14-Nov-13
11.2	(HADR) U2 Replication Fixes	Stability improvements and bug fixes for replication.	14-Nov-13
11.2	Single Server Replication with EDA	Replicate and transform your data on a single server to populate external database for data warehousing and integration.	14-Nov-13
11.2	Local subroutines and functions	Create modular, reusable code that is free from defects.	14-Nov-13
11.1	Index and Key Encryption	Protect sensitive customer data in any field and comply with government, health and financial regulations without modifying your application	22-Oct-10
11.1	(HADR) U2 Replication	Replicate your data to one or more subscribers to off-load reporting from your on-line server or to provide a backup system for high availability.	22-Oct-10
11.1	External Data Access (EDA)	Access external databases like Microsoft SQL Server, Oracle, and DB2 from the comfort of your U2 Basic programs and queries to provide interoperability or integration while leveraging your U2 knowledge.	22-Oct-10

Version	Component / Feature	Benefit	Date
11.1	Extensible Administration	A graphical administration console to manage and monitor your UniVerse system, XAdmin can also be extended to administer your application or embedded within your own Eclipse-based tools.	22-Oct-10
10.3	Basic Developer Toolkit introduced	Graphical tool for exploring, developing and debugging UniData accounts, file and Basic program, BDT improves productivity and satisfies new programmers with the latest look and feel.	20-Oct-09
10.3	Extensible Administration (XAdmin) Tool introduced	Graphical administration tool for administering and monitoring the database application system. View UniVerse resources (servers/accounts/files) in a table/tree view, manage licensing for users and features, all with the familiar look and feel of Eclipse.	20-Oct-09

UniData

Version	Component / Feature	Benefit	Date
8.2	Python Support (Windows/Linux only)	Attract and retain new development talent for your MultiValue applications. Easily extend UniVerse applications with a simple and easy to learn object-oriented programing language. Prototype new features and applications quickly.	*Q2 2017*
8.2	Audit Logging	Manage the auditing requirements of regulations such as HIPAA/HITECH and Sarbanes-Oxley in addition to internal auditing.	*Q2 2017*
8.2	(HADR) U2 Replication Enhancements	1) Cross-Group Transaction (CGT) performance improvements. 2) Delayed Standby Replication - keep the subscriber a defined time period behind publisher to protect against malicious changes and recover to a safe point in the past. 3) Field-Level Replication - Significant performance improvement for applications with large record sizes… only replicate the field changes and reduce resource overhead.	*Q2 2017*
8.2	FIPS 140-2	Arm your business to meet FIPS 140-2 security and compliance regulations when certifying your own application. (HIPAA, HITECH, SOX, PCI-DSS)	*Q2 2017*
8.1	64-Bit File Support	Experience increased I/O performance and work with larger file sizes than ever before! No more 2GB limit on file sizes!	9-Feb-15
8.1	64-bit Architecture (no 32-bit ports)	Take advantage of the most current hardware without the memory limitations posed by 32-bit software! Eliminate the need to maintain a mixed-architecture environment and see a potential performance benefit when the database is fully cached in memory.	9-Feb-15

8.1	(HADR) U2 Replication "Pacing"	Replication Pacing - Publisher adjusts speed to keep pace with subscriber which prevents overflow and increases reliability	9-Feb-15
8.1	Account Based Licensing	Manage database licenses for a multi-tenant based environment by allocating licenses to each account. This ensures availability and access based on service level agreements. It also prevents lower priority accounts from consuming licenses intended for higher priority accounts.	9-Feb-15
8.1	Install / Upgrade improvements	UniData 8.1.0 has overhauled its installer and update process in this release, with significant customer input into the design changes.	9-Feb-15
8.1	MQI	Add support for current, supported IBM WebSphere MQ API.	9-Feb-15
8.1	U2 Dynamic Objects	Easily create and consume Web Service data in both JSON and XML formats.	9-Feb-15
8.1	Local subroutines and functions	Create modular, reusable code that is free from defects.	9-Feb-15
8.1	IPv6	Be ready for the Internet of Things! As the world is running out of IPv4 Internet addresses for all web-enabled devices, IPv6 compatibility provides the ability to create more IP addresses for years to come, and utilizes a more secure data pack in the process. UniData is dual-stack capable IPv4 / IPv6.	9-Feb-15
8.1	Security enhancements	Secure your data with the latest in OpenSSL updates, @ID & Index encryption, and other Automatic Data Encryption (ADE) improvements.	9-Feb-15
8.1	One pass re-encryption	For systems using Automatic Data Encryption (ADE), this provides a faster way to re-encrypt data to refresh security levels.	9-Feb-15
8.1	OpenSSL upgrades & agility	OpenSSL libraries are released often and you need to be able to easily protect your business from the latest security threats. UniData has been enhanced to easily accommodate future OpenSSL updates without having to update UniData itself.	9-Feb-15
7.3	(HADR) U2 Replication	Replicate your data to one or more subscribers to off-load reporting from your on-line server or to provide a backup system for high availability.	30-Mar-12
7.3	U2 Dynamic Objects	Easily create and consume Web Service data in JSON format.	30-Mar-12
7.3	External Database Access (EDA)	Access external databases like Microsoft SQL Server, Oracle, and DB2 from the comfort of your U2 Basic programs and queries to provide interoperability or integration while leveraging your U2 knowledge.	30-Mar-12

7.3	Automatic Data Encryption (ADE)	Protect data automatically by securing it on disk. Help prevent identity theft and comply with government and industry regulations. Configure at record and field level. Set up keys, multiple passwords and policies.	30-Mar-12
7.3	Data Type Enforcement	Ensure data integrity by defining data fields as integer, numeric, date, times, etc. Save programming time and make sure data is correct. Optional setting, configured using U2 MDM.	30-Mar-12
7.2	Basic Developer Toolkit (BDT) introduced	Graphical tool for exploring, developing and debugging UniData accounts, file and Basic program, BDT improves productivity and satisfies new programmers with the latest look and feel.	22-Aug-08
7.2	Extensible Administration (XAdmin) Tool introduced	Graphical administration tool for administering and monitoring the database application system. View UniData resources (servers/accounts/files) in a table/tree view, manage licensing for users and features, all with the familiar look and feel of Eclipse.	22-Aug-08

U2 Common Clients

Version	Component / Feature	Benefit	Date
5.1.0	FIPS 140-2 Support	Arm your business to meet FIPS 140-2 security and compliance regulations when certifying your own application. (HIPAA, HITECH, SOX, PCI-DSS)	20-Oct-16
5.1.0	Bundle VSG/UO.NET	Simplified installer with all the current clients and documentation, plus VSG and UO.NET based on customer demand.	20-Oct-16
5.1.0	Windows 10 Certification	All U2 Common Clients are certified to run on Windows 10 environment.	20-Oct-16
Sep 2015	Wallet functionality for ADE in JDBC	Easily manage your Automatic Data Encryption (ADE) credentials.	16-Sep-15
Sep 2015	IPv6 enabled in Dynamic Connect	IPv6 support now complete for all U2 Common Clients.	16-Sep-15
Sep 2015	OpenSSL updates	Keeping current with the latest security patches with a major OpenSSL update to patch vulnerabilities such as HEARTBLEED. TLS v.1.1, 1.2 support added.	16-Sep-15
Sep 2015	SSL Config Editor support TLS v.1.1/2 for ODBC	Tool for easily configuring which SSL protocol you want to use. Updated this tool to support TLS v.1.1, 1.2.	16-Sep-15
July 2014	JDBC Namespace rebrand	Changing branding from IBM to Rocket.	16-Jul-14

July 2014	IPv6 Support	Be ready for the Internet of Things! As the world is running out of IPv4 Internet addresses for all web-enabled devices, IPv6 compatibility provides the ability to create more IP addresses for years to come, and utilizes a more secure data pack in the process. IPv6 support added to all U2 Common Clients (except Dynamic Connect).	16-Jul-14
Mar 2013	64-bit ODBC for UniData	Now UniData and UniVerse both have 32 and 64-bit ODBC driver. Previously, UniData only had a 32-bit ODBC driver.	5-Apr-13
Nov 2012	U2 ODBC 64-bit thread safe	Stability improvements. ODBC can now run safely in a multithreaded application. (However, the ODBC driver itself is NOT multithreaded).	30-Nov-12
Nov 2011	InterCall, UCI, UniObjects, VSG, ODBC, JDBC, U2 JPA, OLEDB, Dynamic Connect	U2 Clients include standards-based drivers for ODBC, JDBC and OLEDB to connect to U2 via a wide variety of standards-based tools. UniDK includes the UniObjects family of APIs for COM, .NET and Java for high-speed, native access as well as the U2 Java Persistence API (U2 JPA) functionality.	30-Nov-11

U2 DBTools

Version	Component / Feature	Benefit	Date
4.2.0	XAdmin new feature support	Easily enable and configure new UniVerse and UniData features such as Python, SystemCure, FIPS 140-2, and various Replication enhancements.	20-Oct-16
4.2.0	CORS Support for WSD with Jetty 9.x	Cross-origin resource sharing (CORS) defines a way in which a browser and server can interact to allow for more freedom and functionality than purely same-origin requests, but is more secure than simply allowing all cross-origin requests. It is a recommended standard of the W3C.	20-Oct-16
4.2.0	TLS Security Update	Transport Layer Security (TLS) is now automatically set based on the JVM provider to allow for easier and safer communication over U2 REST and U2 WSD.	20-Oct-16
4.2.0	XAdmin Credential Wallet User Interface	Easier to configure wallets in Automatic Data Encryption	20-Oct-16

4.2.0	Support for Rocket Discover	Rocket® Discover is a self-service data discovery and analytics solution for business users that make it easy to see what's happening with your business data. Discover offers simple drag-and-drop functionality, full drill-down capabilities and automatic alerts for critical reporting exceptions improve productivity. U2 RESTful services are now compatible with Discover.	20-Oct-16
4.2.0	Aldon LMe integration within BDT	Basic Developer Toolkit (BDT) has been overhauled to integrate with Rocket® Aldon Lifecycle Manager (LMe). You can easily manage your deployment tasks and get the latest status on your dictionary items and other artifacts seamlessly from within BDT.	20-Oct-16
4.2.0	Converged documentation	Easier to find information within one documentation set (previously several books were published separately and referenced each other).	20-Oct-16
4.2.0	NLS/I18N Support	Enable applications to be globalized using the latest modern techniques and standards to support multiple languages. The BDT Editor and Debugger now support NLS.	20-Oct-16
Dec 2015	Eclipse update to Luna 4.4	Compatibility with a newer, more modern version of the Eclipse environment. Take advantage of new Eclipse plug-ins and enhancements	9-Dec-15
Dec 2015	JVM update	Security updates to help meet PCI DSS 3.1 compliance and provide the latest security patches of POODLE, FREAK, etc.	9-Dec-15
Dec 2015	Jetty update for WSD and REST	Take advantage of enhanced security features and performance.	9-Dec-15
Dec 2015	XAdmin Replication Configurator	Easier setup of replication in a GUI user interface	9-Dec-15
Dec 2015	Documentation of Xadmin	Assist the user of XAdmin in setting up system administration functions for UniVerse and UniData	9-Dec-15
Aug 2014	JPA Free RESTful Web Services		4-Sep-14
Aug 2014	External Database Access (EDA) improvements		4-Sep-14
Oct 2013	UniVerse 11.2 Compatibility	Enhanced BDT to support new BASIC functions. Enhanced XAdmin to support Audit Logging capabilities. Other 11.2 feature support in DBTools include: XML U2 Dynamic Objects, U2RESTful services, Account-based licensing, and more.	14-Nov-13

| Nov 2012 | Stability improvements | Numerous bug fixes for BDT, Xadmin, Web Services Developer, and U2 REST. | 30-Nov-12 |
| Mar 2012 | | U2 DBTools include the Eclipse-based tools for programming and administration. Discover the latest tools: U2 RESTful Web Services, Basic Developer Toolkit (BDT), XAdmin (Extensible Administration Tool), U2 Web Services Developer (U2 WSD), and more. | 30-Mar-12 |

SB/XA

Version	Component / Feature	Benefit	Date
6.5	SB/XA Services	Take your existing SB application web or mobile using SB/XA Services with the new Rocket Connection Manager. Wrap SB processes in web services so that they can be exposed via REST. SB/XA Services natively understands your SB business logic and uses SB COMMON variables.	5/4/2017
6.5	Security	Latest versions of SSH and SSL components.	5/4/2017
6.5	DevOps	SB/XA now supports multiple Communications Servers on one system. Allows for easier DevOps in comparing and testing multiple versions of SB.	5/4/2017
6.5	Data entry	Built-in AutoComplete styles allow you to have auto-complete functionality on data entry in input fields. Use any of three built-in styles, or build your own. Makes data entry faster and easier.	5/4/2017
6.5	Logging Improvements	Automatic Log Collection. Set up automatic log collection so that, in the event of a crash, logs from all SB tiers are gathered, packaged, and shipped to a designated location automatically. Eases the diagnosis of application problems.	5/4/2017
6.4	Help	SB/XA offers built-in, context-sensitive video help. Access video help from the help menu or from specific fields and screens. You also can embed your own video help into your application.	4/28/2016
6.4	Performance	New form cache, grid paging and XPS report loading settings have been added to allow you to customize the performance of SB/XA along with several new performance changes to optimize the performance of SB/XA.	11/18/2015
6.4	Error Messaging	Partners can customize all client error messages to reflect their culture/language to their customers.	11/18/2015

6.3	Grid Enhancements	Update to Xceed Grid 5.3. Additional grid controls such as filtering, sorting and grouping have been provided.	2/19/2015
6.3	Logging Improvements	Logging and debugging enhancements provide better diagnosis of crashes and hangs in the Rich Client and Comm Server.	2/19/2015
6.3	Lifecycle Management Integration	Using Rocket Aldon Lifecycle Manager, specify and define multiple releases and manage all stages of the development lifecycle. Aldon with SB/XA helps you to move changes between environments and to manage multiple versions of the program/screen/paragraph available so that you can see each change and compare across versions.	2/19/2015
6.3	Services	Leverage SB processes, files and fields for the business logic behind mobile and web applications.	2/19/2015
6.3	New XAML Styles	Improve the look of your intuitive help selection forms by utilizing one of the new style examples and options as is or as an example to build your own style from.	2/19/2015
6.2	TCL Support	Access the SB+ command line from within the Rich Client or Browser Client	12/13/2013
6.2	National Language Support	Internationalize SB-developed applications for a diverse customer base	6/14/2013
6.2	Styling Options	Support for XAML styles that define the appearance of mandatory fields and fields with intuitive help. Additional support for writing custom styles.	10/15/2012
6.2	SB/XA Designer	Provides support for screen design in the SB/XA Rich Client. Functionality is nearly identical to that of the Form Painter running on SBClient.	10/15/2012
6.2	Microsoft Outlook-style Navigation	Option to navigate using Outlook-style menus and folders	10/15/2012
6.2	Business Intelligence Integration	Integration with CorVu NG business intelligence functionality for designing visually rich reports and deploying to desktop, web and mobile users.	10/15/2012
6.1	Usability Enhancements	Ability to perform spell checking in fields and employ auto-complete in combo boxes	6/24/2011
6.1	Microsoft Office Integration	Read and write to the Outlook calendar. Both query reports and the report writer are integrated with Excel and Word.	6/24/2011

6.0	.NET Architecture	Using .NET, Windows Presentation Foundation (WPF) and Windows Communication Foundation (WCF) SB/XA gives you a brand new modern look and feel for your SB application, letting you compete head to head with all solutions.	1-Aug-08
6.0	Single Sign On	Use one login authenticated all the way from your PC to your application	1-Aug-08
6.0	Styles and Themes	Extend and customize your application using XAML (XML Application Markup Language)	1-Aug-08
6.0	SB+ Compatibility	Continue to deploy existing SB+ Character and GUI applications unchanged without needing to immediately move to the new architecture	1-Aug-08
6.0	One click deployment	Use the Microsoft ClickOnce technology in the .NET framework to install or upgrade client components on an end-user's system without needing to install local copies on each user's PC. This reduces the total administration costs and eases upgrades.	1-Aug-08
6.3	SSH support	SSH has become a common interface to connect to a server and most newer operating systems have the SSH service configured and running by default. SSH is also considered to be more secure and to perform better than SSL. Note that this is only available with SB+ and SBClient both at 6.3 version.	12-Feb-15
6.3	Lifecycle Management Integration	Using Rocket Aldon Lifecycle Manager, specify and define multiple releases and manage all stages of the development lifecycle. Aldon with SB/XA helps you to move changes between environments and to manage multiple versions of the program/screen/paragraph available so that you can see each change and compare across versions.	12-Feb-15
5.5	Btrieve removal	Less conflict with 3rd party tools that also use Btrieve	1-Sep-10
5.5	Security API improvements	Additional API slots to automate creating Menu and Process restrictions eases the facility to create all SB+ User IDs automatically	1-Sep-10
5.5	Additional SOX reporting	Additional SOX reporting capabilities when copying existing User or Group security records to completely see what is happening to your SB+ Security setup and administration	1-Sep-10
5.4	SSL Support	Secure connections for telnet users using U2 ssl_telnet	1-May-06

5.4	Audit log security	Ability to comply with corporate audits by being able to report on security changes at Group and User security level. Every report provided as a template to customize reporting to match corporate requirements	1-May-06
5.4	Personal Edition	SB+ version that runs on Personal Edition of the Database	1-May-06
5.4	Report Writer PDF output	Allows all reports to be output in PDF format and emailed to designated individuals	1-May-06
5.3	GUI Grid improvements	Multiple GUI Grid improvements such as auto-extending data, combo box focusing and preservation of column sizes and performance improvements	1-Mar-03
5.3	Multi-Language enhancements	Intuitive help and help reminders in translated language	1-Mar-03
5.3	Support for I-type dictionaries	Increase cross usage of SB+ virtual fields across database by allowing SB+ fields to be used at TCL	1-Mar-03

U2 Web DE

Please refer to the MVIS section for details on the next version of U2 Web DE. MVIS is the natural evolution of Web DE. Therefore, MVIS will be the integration solution we market moving forward. We will continue to support all Web DE customers, but will no longer actively market Web DE.

Version	Component / Feature	Benefit	Date
5.3	RESTful Services	Web DE RESTful services. Take your existing WEB DE application mobile with minimal application refactoring using new Connection Manager functionality.	13-Jul-17
5.3	Security	Upgrade to latest SSH and SSL. PCI DSS 3.1 compliance for processing credit card transactions.	13-Jul-17
5.3	Web Admin UI	Web UI that monitors connection status and performance metrics. It also contains admin functions such as account restarts and configuration changes.	13-Jul-17
5.3	New API	API to drive monitoring and logging. Customers can write their own programs to access these controls and features.	13-Jul-17
5.2	Monitor	Keep an eye on your web site responsiveness via traffic light indicators, troubleshoot when faced with high demand, and identify areas to improve or adjust license consumption. Monitoring is available via the Designer.	30-Jun-15

5.2	Logging	Quickly identify slow processes in the new logging functionality that traps processes and displays relevant information in a process table. Keep track of the distribution of requests across database licenses. All database and basic errors are logged along with the information about the instantiated RBO and method call that was occurring at the time to provide a single file point of reference. Logs can be set to gather statistics on an adjustable timed basis and can be turned on/off without restarting the scheduler. A full log of all the statistics being gathered can be exported to other tools for additional sorting and filtering.	30-Jun-15
5.1	Return of Webshares	Webshares allow for more efficient use of licenses when processing requests.	9-Sep-13
5.1	Scheduler	Better manage the routing of requests and web share consumption to keep your web site fast and responsive. Pause and restart of the database does not interrupt operations or allow requests to be lost. Upon restart, any cached object code is recognized. This administration is available via the Designer.	9-Sep-13
5.1	Performance	System overhead and OS level administration is considerably reduced while better throughput between the client and scheduler is achieved due to persistent thread pools that eliminate socket construction with every request.	9-Sep-13
5.1	Security	Enhanced security with SSL between the client/scheduler and scheduler/database means you can be confident that your data isn't being compromised.	9-Sep-13
5.1	RESTful Services	Expose your existing web logic and reuse Web DE RBOs as web services for use in other applications and processes via RESTful services. An integrated REST server is included with the Designer and can be implemented via drag and drop to easily expose existing RBOs to web or mobile applications.	9-Sep-13
5.0	Support for Global Languages	Leverage the power of UniVerse NLS and UniData I18N to handle languages and character sets from languages around the world to expand your market.	1-Nov-10
5.0	24x7 Support	Use pause capabilities in UniVerse or UniData to take a snapshot of your data without needing to bring down your web-site.	1-Nov-10
5.0	Ease of deployment	Deployment and enablement of u2 Web DE completely through the GUI Web Designer reducing administration and manual steps performed on the backend server.	1-Nov-10

5.0	.NET development	True .NET development is supported, no longer requiring you to use a COM interop layer when invoking your RBOs from .NET. The Native .NET library and easier to use API allows your development team to work more effectively with .NET.	1-Nov-10
4.4	GUI Administration	Integrated administration in the Web DE eclipse-based provides a consistent interface for administrators reducing the number of interfaces and manual steps needed to perform day to day tasks.	1-May-07
4.4	Improved Garbage collection	Removed need for a dedicated webshare for garbage collection and improved performance lowering total number webshares needed to run solutions thereby reducing costs.	1-May-07
4.4	Improved upgradability	Removed version check at patch level allowing versions higher than 4.2.6 to be mismatched so easing testing of different versions without having to upgrade both the web and application server at the same time.	1-May-07
4.4	64-bit platform support	64-bit JNI for Windows and Solaris allowing older RedBack versions to move onto newer platforms.	1-May-07
4.3	GUI RBO Designer	Modern look and feel, based on open standards and includes an RBOScope tool to expand capability for testing and debugging.	1-May-06
4.3	Improved Performance	Removed deprecated code used by older releases to improve efficiency, streamline license checking, remove unnecessary URL encoding and improve the SPIDER protocol.	1-May-06

wIntegrate

Version	Component / Feature	Benefit	Date
6.4	IPv6 Support	Be ready for the Internet of Things! As the world is running out of IPv4 Internet addresses for all web-enabled devices, IPv6 compatibility provides the ability to create more IP addresses for years to come, and utilizes a more secure data pack in the process.	9-Feb-16
6.4	R/Link Integration	Rocket R/Link is a secure online file sharing and managed file transfer solution that resides on your network. The Query Builder can send newly created files to R/Link folders. Also, scripting supports the R/Link API so you can build your own interfaces to R/Link functionality.	9-Feb-16
6.4	SSL Update	SSL supports TLSv1.1 and TLSv1.2 in compliance with PCI DSS standards.	9-Feb-16
6.3	Host Program Improvements	Multiple improvements and updates.	13-Apr-15
6.3	Scripting Enhancements	Multiple improvements and updates, plus error reporting/recording.	13-Apr-15
6.3	Documentation Overhaul	The documentation has undergone reorganization and includes many updates to the presentation. The Installation and User Guides have additional information.	29-Jul-14
6.3	D3 and mvBase Integration	All wIntegrate emulation, file transfer and scripting features are supported with D3 and mvBase. wIntegrate also supports D3 enterprise licensing.	29-Apr-14
6.3	Aldon Integration	Rocket's Aldon product family supports lifecycle management, source control, and automated live deployment to the rigorous standards required by today's auditing requirements. The wIntegrate Editor supports the Aldon LM(e) source control repository; continue to edit, compile, and run Basic programs while synchronizing the U2 host with the LM(e) repository and automatically deploy to production environments.	19-Nov-13
6.3	Support Excel .xlsx Files	Multi-valued data can be imported into .XLSX files much larger than previously supported. Formulas can be stored in MV data fields. Performance improvements.	29-Mar-13
6.3	Combine Dialog Designer and Editor	The Editor now incorporates the functionality of the old Dialog Designer. The Editor has usability enhancements related to the R/Link integration	29-Mar-13
6.3	Thin Client Deployment	Multiple improvements to administrative functions and the Monitor.	29-Mar-13
6.3	Auto-generate MV Basic	The Editor paints host-driven GUI forms and simultaneously creates MV Basic code.	25-Oct-12
6.3	Japanese Katakana Support	The character screen and keyboard input support Japanese Katakana characters.	7-May-12
6.2	Simplified Support for Universe NLS	New host encoding option simplifies use of UniVerse NLS.	28-Jun-10

D3 Family of Products

D3 Server

Platform	Version	Component / Feature	Benefit	Date
Windows, AIX, Linux	10.3.1			AIX and Linux – Oct 2nd 2019, Windows July 15th 2019
All	10.3.1	Python – Python to D3 / D3 to Python	Introducing Python creates a new resource pool of developers since Python is one of the most popular development languages in use today and is well recognized by young developers attending Universities. Python provides a Package Index that provides over 180,000 packages that extend the features of Python which can directly enhance your exiting MV application.	AIX and Linux – Oct 2nd 2019, Windows July 15th 2019
All	10.3.1	mvBase Upgrade	mvBase customers can now upgrade to the D3 platform which will allow them to leverage all the great D3 features such as access to relational databases, HA/DR and connection pooling while keeping mvBase features that they've loved for years.	AIX and Linux – Oct 2nd 2019, Windows July 15th 2019
All	10.3.1	mvBase Workstation (now called mvWorkstation) components now included	Enables support for local telnet servers, local file interaction so you can create, read and write to files on local machines and copy D3 data into these files. You'll also be able to use local printers	AIX and Linux – Oct 2nd 2019, Windows July 15th 2019
All	10.3.1	Support for OpenSSL 1.1 dll filenames	Security enhancements that help protect confidential data which in turn improves customer trust includes the addition of STARTTLS for automated SSL connectivity and SSL support for HotBackup and OSFI for data encryption in transit. OpenSSL has been upgraded to v1.1.1	AIX and Linux – Oct 2nd 2019, Windows July 15th 2019
All	10.3.1	Performance	Improved existing application Query and Runtime performance through query caching. With the mvBase upgrade path to D3 performance improvements can be seen through enhanced D3 functionality and added mvBase features.	AIX and Linux – Oct 2nd 2019, Windows July 15th 2019

Windows	10.2	Performance	D3 Windows 10.2 introduced a true 64-bit release of D3 for the Windows platform, providing extended memory usage and enhanced of performance of D3 applications on 64-bit hardware platforms.	15-Apr-16
ALL	10.2	Monitoring	The d3watcher utility has been added to the base product and is now readily available for monitoring of your D3 environment.	Linux - 22-Mar-16, Windows - 15-Apr-16, AIX - 12-May-16
AIX, LINUX	10.2	Administration	The database pause/resume feature improves backup performance by allowing temporarily suspension of disk writes for the purpose of creating an external backup or snapshot of the current state of the disk, without requiring you to pause your D3 application.	Linux - 22-Mar-16, AIX - 12-May-16
AIX	10.2	Compliance	Supports ability to audit access to D3 data for compliance.	12-May-16
AIX	10.2	Administration	Configure D3 as a service to automatically start and shutdown in tandem with the AIX Operating System.	12-May-16
Linux	10.1	Installation	Select and use an existing logical volume during the D3 setup process, alleviating the need to manually create the disk statement in the pick0 file.	30-Mar-15
Linux	10.1	Administration	Configure D3 as a service to automatically start and shutdown in tandem with Linux Operating System.	30-Mar-15
Linux	10.1	Compliance	Supports ability to audit access to D3 data for compliance.	30-Mar-15
Linux	10.1	Performance	D3 Linux 10.1 introduced a true 64-bit release of D3 for the Linux platform, providing extended memory usage and enhanced of performance of D3 applications on 64-bit hardware platforms.	30-Mar-15
Linux	9.2	Installation	Enhanced the install of D3 so that all dependent packages are installed during D3 setup.	25-Mar-14

Linux	9.2	Licensing	Added Enterprise Licensing to allow multiple connections (5 or 10) from a client to share a single user license.	25-Mar-14
Linux	9.2	Licensing	Enhanced License Manager service to support D3 deactivation for improved experience when moving D3 from one server to another server.	25-Mar-14
Linux	9.2	Security	Added support for SSH connections on D3.	25-Mar-14
Linux	9.2	Security	Added support for file-level encryption with the new create-file (e option. Provided the ability to encrypt and decrypt existing files via the new encrypt-file and decrypt-file commands.	25-Mar-14
Linux	9.2	Security	Added support for %encrypt and %decrypt functions in BASIC to support the ability to manage field level encryption at the application level.	25-Mar-14
Linux	9.2	Host Authentication	Added support for host authentication for D3 to support single sign-on. Features such as setting a password to expire after a certain time period, locking out a user after a specified number of failed attempts or setting account lockout periods are available.	25-Mar-14
Linux	9.2	Security	Enhanced the MVSP server to support SSL connections.	25-Mar-14
Linux	9.2	Security	Added support for SSL connections using the %accept_ssl, connect_ssl, %read_ssl,%write_ssl and %close_ssl functions in BASIC.	25-Mar-14
Windows	9.2	Transactions	Added support for Transaction Bracketing to D3 ODBC.	25-Mar-14
Windows	9.2	Indexing	Added support for having both a case sensitive and a case insensitive index on the same correlative.	25-Mar-14
AIX	9.1	Performance	D3 AIX 9.1 introduced a true 64-bit release of D3 for the AIX platform, providing extended memory usage and enhanced of performance of D3 applications on 64-bit hardware platforms.	28-Aug-13

AIX	9.1	Host Authentication	Added support for host authentication for D3 to support single sign-on. Features such as setting a password to expire after a certain time period, locking out a user after a specified number of failed attempts or setting account lockout periods are available.	28-Aug-13
AIX, Windows	9.1	Licensing	Added Enterprise Licensing to allow multiple connections (5 or 10) from a client to share a single user license.	28-Aug-13
AIX, Windows	9.1	Licensing	Enhanced License Manager service to support D3 deactivation for improved experience when moving D3 from one server to another server.	28-Aug-13
AIX, Windows	9.1	Security	Added support for SSH connections on D3.	28-Aug-13
AIX, Windows	9.1	Security	Enhanced the MVSP server to support SSL connections.	28-Aug-13
AIX, Windows	9.1	Security	Added support for SSL connections using the %accept_ssl, connect_ssl, %read_ssl,%write_ssl and %close_ssl functions in BASIC.	Windows - 6-Feb-13, AIX - 28-Aug-13
AIX, Windows	9.1	Security	Added support for file-level encryption with the new create-file (e option. Provided the ability to encrypt and decrypt existing files via the new encrypt-file and decrypt-file commands.	Windows - 6-Feb-13, AIX - 28-Aug-13
AIX, Windows	9.1	Security	Added support for %encrypt and %decrypt functions in BASIC to support the ability to manage field level encryption at the application level.	Windows - 6-Feb-13, AIX - 28-Aug-13
Windows	9.1	Replication	Enhanced FSI Hot Backup for administration and performance.	6-Feb-13
All	9.0	Introduction of MVS Toolkit	Introduced the MVS Toolkit to support development and deployment of web services to allow developers to access D3 multi-value data and business logic utilizing SOAP & RESTful web services. **See the MVS Toolkit tab for follow on release features.**	9-Feb-12
All	9.0	AQL	Enhanced AQL to utilize indexes when using >, >=, <, <= and # operators.	27-Sep-10
All	9.0	AQL	Implemented "eval", "conv", and "fmt" AQL modifiers.	27-Sep-10

All	9.0	Introduction of MVSP	Introduced MVSP .NET, and Java API's to allow developers to access D3 multi-value data and business logic utilizing .NET and Java. **See the MVSP tab for follow on release features.**	27-Sep-10
All	9.0	Performance	Added support for "DQ" file type to allow for sequential processing without lock contention and preventing processing delays.	27-Sep-10
All	9.0	IPv6 Support	Added support for IPv6 compatibility to address support more IP addresses. D3 now utilizes a more secure data pack and is dual-stack capable IPv4/IPv6.	27-Sep-10
All	9.0	Licensing	Enhanced licensing to allow 3 connections from one client IP address using a single license with a maximum of 2 connection of each type (RPC, ODBC or Telnet).	27-Sep-10
All	9.0	OSFI	Added the OSFI "binx" driver which allows reading, manipulating and writing D3 binary items.	27-Sep-10
Windows	9.0	Host Authentication	Added support for Windows authentication for D3 to support single sign-on. Features such as setting a password to expire after a certain time period, locking out a user after a specified number of failed attempts or setting account lockout periods are available.	27-Sep-10
Windows	9.0	Printing	Added support for Windows only printers.	27-Sep-10
Windows	9.0	Replication	Added the ability to replicate FSI data to another D3 Windows system.	27-Sep-10

mvBase Server

Version	Component / Feature	Benefit	Date
3.3	Remote File Access	Added the ability to access data stored on a remote mvBase system from within mvBasic. All statements in mvBasic that utilize a file variable are supported with the exception of CLEARFILE.	27-Jun-16
3.3	Administration	Enhanced the mvBase server service to invoke the virtual: POWERFAIL when Windows is being shut down or restarted.	27-Jun-16

3.3	Overflow Management	Changed how overflow is managed by select lists to prevent accumulation of overflow buffers.	27-Jun-16
3.3	Utilities	Added AUTO-RESTART command to define a verb to be executed when a process is going to TCL.	27-Jun-16
3.2	Tracing	Trace enabled versions of the mvWorkstation and mvServer components are now installed by default.	1-Sep-14
3.2	Authorization	Authorization keys can now be applied without having to shutdown & restart the mvBase server.	1-Sep-14
3.2	Overflow Management	Improved overflow and workspace management to minimize fragmentation and bottlenecks for improved performance.	1-Sep-14
3.2	Transaction Logging	Improved buffer management for transactions by utilizing reusable buffer space.	1-Sep-14
3.1	Licensing	Enhanced mvBase to support multiple user connections for a single mvBase user license for both mvTerm and telnet clients (connecting to the local mvBase Workstation component).	7-Feb-12
3.1	Spooler	Increased the number of printers to 1000 and the number of form queues to 1500.	7-Feb-12
3.1	Scalability	Added support for up to 2048 process lines.	7-Feb-12
3.1	Scalability	Added support for up to 15,990 BASIC variables.	7-Feb-12
3.0	Introduction of MVS Toolkit	Introduced the MVS Toolkit to support development and deployment of web services to allow developers to access D3 multi-value data and business logic utilizing SOAP & RESTful web services. **See the MVS Toolkit tab for follow-on release features.**	9-Feb-12
3.0	Introduction of MVSP	Introduced MVSP .NET, and Java API's to allow developers to access D3 multi-value data and business logic utilizing .NET and Java. **See the MVSP tab for follow-on release features.**	9-Sep-10
3.0	Printing	Added support for Windows only printers.	9-Sep-10
3.0	BASIC	Enhanced Error Logger to allow logging Basic Runtime Errors.	9-Sep-10
3.0	Overflow Management	New CLAIM command was added to allow recovery of blocks of frames from the POVF linked space.	9-Sep-10
3.0	Administration	The power fail shutdown process was redesigned to ensure that a timely shutdown is performed.	9-Sep-10

MVSP (Client API's and Server)

Platform	Version	Component / Feature	Benefit	Date
MVSP Client APIs				
All	2.2.0	Connection Management	Added idle timeout mechanism for connection pooling in the MVSP .NET client that removes connections from the pool that have exceeded the maximum idle timeout.	*Q4 2017*
All	2.2.0	Connection Management	Added ForceClose and ForceCloseTimeout properties to allow the user to select a force close condition and timeout.	*Q4 2017*
All	2.1.1	Debugging	Support toggling the keep-alive function to allow basic programs to be debugged on the D3 server. This is controlled from the D3 server using the MVSP.DEBUG verb.	13-Jan-16
All	2.1.0	MVSP APIs	Allow developers access to MultiValue data from the PHP, C and C++ programming languages.	11-May-15
All	2.1.0	Encoding	Added -Dmvsp-encoding option to the Java API to handle alternate character encodings.	11-May-15
All	2.1.0	WCF Support	Enhanced connections from a WCF host to be able to utilize standard D3 user licensing.	11-May-15
All	2.1.0	Connection Pooling	Added the ability to configure a pool of connections that can be consumed by multiple threads within an application.	11-May-15
All	1.8.0	Security	Enhanced MVSP API clients to utilize SSL for secure socket communications.	15-Apr-13
All	1.8.0	Licensing	Enhanced MVSP API clients to support Enterprise Licensing.	15-Apr-13
All	1.4.0	Transaction Bracketing	Enhanced MVSP APIs to support transaction begin, commit, rollback and status.	11-Aug-11
All	1.0.0	MVSP APIs	Allow developers access to MultiValue data from any Visual Studio .NET programming language or their preferred Java IDE.	27-Sep-10
MVSP Server				
All	1.9.0	Connection Management	Implemented the MVSP.SEND.COMMAND to allow the application to disable or adjust the client ForceCloseTimeout value.	31-Oct-17

All	1.9.0	MVSP Options	Added option to MVSP server maintenance menu to allow setting MVSP runtime options.	31-Oct-17
Windows	1.9.0	Connection Management	Enhanced MVSP server on Windows to make use of the standard trap utility for cleaning up connections.	31-Oct-17
All	1.8.9	FlashBasic Object Code Refresh	Allow references to FlashBasic Object code to be flushed on a LOGTO, causing a new version of the code to be loaded.	23-May-16
All	1.8.9	Performance	Improved the performance transmitting large amounts of data to the MVSP server.	23-May-16
All	1.8.8	Performance	Improved the performance of releasing a connection from a connection pool.	22-Apr-16
AIX, Linux	1.8.7	FlashBasic Object Code Refresh	Added MVSP.REFRESH verb to allow restarting the MVSP server to release and refresh FlashBasic Object code for subroutines. Supported in D3 Linux and D3 AIX with no basic segment defined.	15-Mar-16
AIX, Linux	1.8.6	Non-FlashBasic Support	Enhanced MVSP to allow non-flashed subroutines to be used by MVS Toolkit web services on D3 Linux and D3 AIX.	13-Jan-16
All	1.8.6	Debugging	Added the MVSP.DEBUG verb to allow toggling of the keep-alive function in the .NET client, to support debugging Basic programs. This requires version 2.1.1 or later of the .NET client.	13-Jan-16
All	1.8.6	Security	Enhanced the MVSP setup to check for server.pem file when SSL connection is specified.	13-Jan-16
All	1.8.5	CorVU NG Support	Added MVSP server-side support for CorVU NG.	26-Jan-15
All	1.8.5	Licensing	Enhanced D3 to return "Too many users" message when no user license is available.	26-Jan-15
All	1.8.5	ExecuteQuery show-nulls	Added show-nulls modifier to the MVSP ExecuteQuery method to support displaying empty MultiValues.	26-Jan-15
All	1.8.0	Host Authentication	Enhanced MVSP for host authentication to support single sign-on when host authentication is enabled.	15-Apr-13
All	1.5.0	List Handling	Added the ability to have an active list passed to the ExecuteQuery and ReadNext methods.	10-Dec-11
All	1.5.0	Using Clause	Enhanced ExecuteQuery to support the Using keyword to allow the use of a dictionary of another file.	10-Dec-11

| All | 1.4.0 | Subroutine Validation | Added support for subroutine call validated, to verify required parameters and return an error if validation fails. | 11-Aug-11 |
| All | 1.0.0 | Initial Release | MultiValue Server Protocol providing the server-side interface to all external MVSP APIs. | 27-Sep-10 |

MVS Toolkit

Version	Component / Feature	Benefit	Date
2.3	Web service management	Web service definitions can be changed while running.	*2H 2017*
2.3	Connection Pooling	Greater flexibility when configuring connection pools during web service import.	*2H 2017*
2.3	Connection Pooling	Performance optimized when using connection pools.	*2H 2017*
2.2.1	Rocket Discover	Enhanced the MVS Toolkit to facilitate web service communication to Rocket Discover.	22-Jul-16
2.2	Web Service Management	Added the ability to import/export individual web service operations.	3-May-16
2.2	Web Service Response	Enhanced web service JSON response to include status and error messages.	3-May-16
2.2	CORS Protocol	Added support for Cross Origin Resource Sharing protocol.	3-May-16
2.2	Web Service Management	Added the ability to do a global replacement of the server name, host, port, user and password when importing a web service.	3-May-16
2.2	Subroutine Management	Added ability to utilize full path (account name, file name, subroutine name) to support subroutine web services with the same subroutine name in multiple accounts.	3-May-16
2.1	Connection Pooling	Connection pooling optimizes the use of connections. When the connection pool is configured the connection pool license type will be used if present.	5-Aug-15
2.1	HTTP Response Codes	Enhanced MV Toolkit to allow web service subroutines to set the HTTP response code using the value for the 'status' response header field.	5-Aug-15
2.1	Web Service Management	Added the ability for a web service operation to retrieve the requestor's IP address.	5-Aug-15
2.1	Web Service Management	Enhanced the MV Toolkit WSDL generation to recognize a web service subroutine as a request-only service if no output arguments are defined.	5-Aug-15

2.1	Web Service Management	Enhanced MVS Toolkit to support copying web services and dynamic arrays using drag-and-drop operations.	5-Aug-15
2.1	Subroutine Management	Added ability to send XML data to web service subroutine arguments.	5-Aug-15
2.0	Subroutine Management	Enhanced MVS ToolKit to allow subroutines to generate output directly to the web service client overriding the web service default output.	1-Jul-13
2.0	Security	Added support for SSL connections between the web service provider and the D3 database.	1-Jul-13
2.0	Security	Enhanced security options to include HTTP Basic and Digest security along with group-based security for access to a web service URL or resource.	1-Jul-13
2.0	REST protocol	Enhanced MVS Toolkit to support the REST protocol for web services, including JSON formatted output.	1-Jul-13
1.1	Subroutine Management	Enhanced MVS toolkit to allow setting multiple argument usage and type when creating or editing a subroutine based web service operation.	11-Jan-13
1.1	Web Service Management	Enhanced the MVS toolkit to allow editing an existing web service.	11-Jan-13
1.1	Dynamic Array Management	Enhanced the MVS toolkit dynamic array creation to display the array edit dialog after the array has been created.	11-Jan-13
1.1	Subroutine Management	Removed the auto-invocation of the subroutine list generation routine and added the ability to enter a subroutine name and optionally press the 'List' button to get a list of subroutines.	11-Jan-13
1.1	Dynamic Array Management	Enhanced the MVS Toolkit dynamic array editor to allow selecting multiple elements for edit and delete operations.	11-Jan-13
1.1	Dynamic Array Management	Enhanced the MVS Toolkit to allow renaming a dynamic array used in the web service definition.	11-Jan-13
1.0	MVS Web Services Toolkit	Introduced the MVS Toolkit to provide a facility for exposing D3/mvBase MultiValue data as web services.	9-Feb-12

MultiValue Platform Extensions

MultiValue Integration Server (MVIS)

MVIS is the natural evolution of Web DE, Connection Manager and U2REST. Therefore, MVIS will be the integration solution we market moving forward. Whil we will continue to support all Web DE customers, we will no longer actively market or enhance Web DE or U2REST.

Version	Component / Feature	Benefit	Date
1.2.1	API & License Logging and Monitoring	• Pin-points potential API and connection issues so you can address them and prevent a "system unavailable" situation. • Integration with monitoring and BI tools means you can assess historical and trending information and address • Ensures 24x7 service and application availability	
	Modern Web-based UI or REST API to configure, monitor, administer MVIS	• Create REST services, modify account configurations or enable security in an interface that is easy to use and understand. This functionality is offered via the MVIS administration API set or through the web based UI for increased flexibility.	
	RESTful Service Development	• MVIS service development exceeds prior U2 RESTful architecture and provides a low-code/ no-code approach for easier, faster API development. Moving forward, MVIS will be our go-to-market solution for creating and deploying RESTful services	
	Swagger Integration/ Support that provides an easy to understand specification for documenting and designing REST APIs	• Helps attract a younger talent pool that doesn't have to know MV architecture due to Swagger integration • Opens up business opportunities since partners and 3rd party vendors can use Swagger defined APIs to easily understand, test, and consume the business logic to build new applications. (Participating in the API Economy)	
	Horizontal Scaling - Maximum Traffic Volume triggers new instances of MVIS to be created. Traffic redistributed for optimized end-user experience.	• Provide optimized performance levels and user experience, even during spikes in transaction volume • Ability to meet customer and department SLAs	

	Connection Resiliency – Graceful Failover – Two identical production instances run in parallel to support blue-green deployments	• No downtime during application maintenance for increase productivity levels • Hook in with Continuous Integration / Continuous Development pipeline	
	Connection Resiliency "Keep-Alive". Continuous pings from MVIS to the Data Server to prevent idle connections from being terminated	• 24x7x365 Application availability to meet the demands of your customers • Provide optimized performance levels and user experience, even during spikes in transaction volume • Ability to meet customer and department SLAs	
	Connection Resiliency – "Self-healing" As connections between MVIS and the app server are monitored, failed connections are terminated and another established.	• 24x7x365 Application availability to meet the demands of your customers • Provide optimized performance levels and user experience, even during spikes in transaction volume • Ability to meet customer, and department SLAs	
	Cloud Ready – Ability to leverage services that cloud providers such as Azure & Amazon Web Service offer	• Cost savings when moving from on-prem to cloud • Increases application value by leveraging services offered by cloud providers	
	Container & Orchestrator Friendly	• Easier cloud deployment with containerization • Shared configuration files allow for minimal changes to update settings across multiple accounts / server connections	