

## The Richards-Zeta Omega Platform Difference

The Building Systems industry has experienced another technological explosion with the development of Web based operating systems and more Enterprise level applications. This along with a whole new library of 3 and 4 letter acronyms has produced a great deal of confusion and paradigms about systems architectures and capabilities. The purpose of this paper is to compare the Richards-Zeta Mediator Omega platform with Mediator/M2 to other systems which from a marketing perspective appear to be the same or similar but when analyzed closely really are not.

### Hardware and Firmware Foundation

It is important to understand some of the foundational differences between hardware and firmware platforms and the advantages and disadvantages of each. It is equally important to understand the design philosophy behind the platform.

### Computer Based Server Systems

- The majority of the web based systems being offered in the industry are designed around a central computer based server.
- Software is written around Windows applications.
- The advantages of a single server based system is the ability to collect and manager large amounts of data from the distributed system architecture and create custom reports in addition to being the web page generator.
- The major disadvantages of the single server model are:
  - a single source of failure,
  - license fees for the software are charged
  - number of users is a cost driver for manufacturer
  - Additional hardware and software for network management creates multiple databases and more complex architecture
  - Additional network traffic issues for the customer
- Revenue generators for manufacturer based on increased complexity of larger single server based systems.
- BACnet or Lon protocols over IP requires greater customer network management and raises network security concerns all of which are unknown factors to the conservative I.T. managers.
- Future system development constrained by existing non-I/P design and multiple required protocols limitations.
- Multi-Protocol Exchange (MPX) or systems integration is typically at higher level of the architecture and maybe limited based on server or network configuration.

## Mediator/M2 Micro-Server Architecture

- The Mediator and M2 platforms are examples of distributed micro-server technology with capability of up to 4 GB of flash memory per unit.
- Operating system is Linux based not Windows providing the following advantages:
  - Written in a traditional high level IT based software used by many companies such as Google
  - There are no license fees because Linux is open source
  - Unlike Windows, Linux cleanly separates the operating system from the applications allowing higher reliability and more robust in processing
- All software is embedded into the firmware and does not require a higher level computer even for Enterprise Applications requiring no additional hardware.
- The number of users is not pre-configured, is unlimited and therefore is not a cost driver.
- Platform is all I/P based and supports 10 and 100MB networks.
- The Mediator/M2 device is an integrated firmware, software, network engine contained in a 6 x 10 inch package.
- Each device is capable of supporting to up 45 different protocol drivers.
- The technology is future proof designed for both firmware and software enhancements.
- Downloads of software via the Internet and even systems diagnostics is built into each device.
- Upper level system integration to 3<sup>rd</sup> party or Enterprise system is streamlined and seamless due to IT platform design.
- Simple design permits multiple devices on a single LAN/WAN for larger networks.
- Ability to integrate BACnet, LON sub-networks up to IP networks with different operating platform options.

## Overall Design Philosophy

Just as the Building Systems industry has developed distributed architecture, Richards-Zeta has taken the design philosophy to the next level. Because the Mediator and M2 platforms were designed around an IT standard with embedded software including all operating and diagnostics documentation there is no need for additional components to deliver true system integration and IP based solutions.

The operating philosophy is to utilize the power of the web and a true IP based design to provide for greater flexibility, greater fail-safe design, greater network security, a standard node browser interface, provide backward compatible legacy solutions while creating a future proofing system platform. No single component is an “Achilles Heal”, does not require software licenses, and is not limited in number of nodes, points, graphics, users or networks. To understand the total power of this small device is the greatest challenge presented to Richards-Zeta Building Intelligence.

This paper started with talking about changes in the industry which will continue and at the core of the issue is design flexibility for the future change. That is why a Linux based system with software written in higher level Python gives not only the flexibility but true open which creates options for the customer. There is no question about the continuing development for the internet so a mandatory design requirement is to have the firmware and software design to utilize every aspect of xml, html, http not just as a web interface or pathway but to make them integral at the core of the system. This is THE foundation of the Omega Platform with the Mediator and M2.

### **What This Mean To The Customer**

So what is the bottom line? In a single word it is, OPTIONS! Options for today in looking backward at the existing system and how to leverage those existing assets with future system flexibility as part of the core design to take advantage of changes in technology.

In both scenarios there is no need to create a top end heavy architecture which creates additional overhead. The Omega Platform with the Mediator or M2 firmware provides the system architecture flexibility as an integral part of the LAN or WAN instead of adding layers. Existing systems components are either utilized to bring additional capabilities at lower cost or are replaced, again without large additional expense so all downstream system components capabilities are increased via the network.

The core product design allows for additional future network and software capabilities via connectivity to be able to download new features instead of having to send out a new software disk to be loaded in a single server only to find out the downstream system components have to be upgraded as well.

It is a logical conclusion that product design is what drives all other aspects about the system architecture and when the core product design is based on I.T standards for both firmware and software then the customer gains the benefits of that design in providing flexibility and options from financial, operational and future proofing perspectives.