

TECHNICAL NOTES

VASIT001



MandateIP® Q & A



MandateIP® is the core software technology upon which VAS constructs applications to support the unique operational needs of our customers. Although primarily used by ADS to deliver systems for the automation of fulfillment or distribution operations, it has also been used in more varied applications such as sales kiosk automation, mechanical control systems, broadcast (TV) operation automation, and building security control systems.

This particular white paper is only an introduction and provides very short descriptions to the common questions concerning MandateIP based systems. Other white papers address the individual topics in more detail.

What Is MandateIP® “Core Software Technology”?

The MandateIP® core technology is a “framework and a defined structure” that includes:

- An architecture definition specifying the nature of the relationships of individual system elements
- A layer sitting on top of the operating system that integrates the associated processes to form a system
- A base set of system processes, tools, rules, functions, procedures, and methods universal to all applications (systems)

What Is The System Architecture?

The simplest explanation of the MandateIP® system architecture is “a distributed transaction processing system”. Distributed indicates that it operates on a collection or cluster of computers. It is a message-based (transaction) architecture where the communication between processes is primarily message based. Messaging is “asynchronous” where a request message and the associated response message are

independent. The MandateIP® architecture is highly modularized on a functional basis.

Does MandateIP® Conform To A “Client-Server” Model?

From a hardware perspective, MandateIP® conforms to a Client-Server model where a cluster of servers supports individual or groups of clients. There are two general types of transactions within a MandateIP® system. One type is “request for service or action”, the other type is “response of service requests”. Service and action requests are directed (routed) to a service provider or as we call it a servant process. A service provider may require the services of another process to complete a request. Thus a server may become itself a client of another server. The MandateIP® core technology is responsible for making all connections and routing of requests to the appropriate service provider.

What Were The MandateIP® Design Objectives?

The design factors and objectives of the MandateIP® architecture are:

- Provide a real-time scalable computing platform capable of supporting fulfillment operations handling millions of individual order items daily.
- Provide an application architecture structure to allow complex operational requirements to be divided seamlessly among a collection of individual processes.
- Provide a support environment for individual processes (programs) to minimize or eliminate process inter-relationships.

What Are The Supported Software Platforms?

MandateIP® operates on Linux and Microsoft Windows. For Linux systems VAS primarily uses SuSE Linux. The Linux version is updated as required. Windows versions supported are Win2K and XP. Earlier Mandate versions ran on QNX, DOS, and other operating systems.

What Are The Supported Hardware Platforms?

MandateIP® has been thoroughly tested running on runs on Intel compatible computing hardware. VAS primarily uses Dell and HP computers. Other platforms require certification.

What Is The Database?

VAS uses both Oracle and MySQL. Other SQL conforming databases may be supported. MySQL is the database of choice.

How Do MandateIP® Systems Handle Backup and Fail-Over?

Depending upon requirements, MandateIP® systems run on servers with RAID 5 hot swappable drives and full redundancy with hot backup CPUs.

What Are The Programming Languages?

MandateIP® is written in C/C++ and Python. Python is a powerful object oriented scripting language like Java. Its syntax is similar to C/C++. Python has become the defacto standard in the Linux community for complex scripting applications. Python runs on multiple hardware and operating system platforms.

What Are The Support Options?

VAS provides 24X7 support with SLA's that guarantee response times of 30 minutes or less. VAS also offers training for internal support

organizations, and backup support for those organizations.

Is Source Code Available?

Source code is a licensing option available for any MandateIP® based system. Source code is protected by copyright and a customer is required to sign a non-disclosure agreement specific to the program code. Two levels of code are available, the code that forms the clients "application" which allows the modification and addition of application functionality, and the "core" MandateIP code. VAS also provides application support and development training for customers with source licenses.

How Is Configuration Managed?

VAS currently uses a configuration management tool called CVS. All MandateIP® code, configuration data, database structure, report, screen and menu definitions are under change control.

Why Is MandateIP® Necessary?

First of all is speed and scalability. Real-time dynamic optimization requires greater processing power than batch processing or static optimization. Secondly is to simplify the support of complex systems. As system operational requirements grow, the complexity of program code grows at a greater rate (exponentially or non-linearly). Just dividing the code into sub-programs does not change this non-linear relationship. System complexity is a function of not only the sum of the individual components but of the inter-relationships between the components. The MandateIP® architecture provides individual processes a single relationship with all other programs. To an individual program, the entire balance of the system is seen as a single relationship. As such, MandateIP® system complexity grows linearly

with operational requirements. Easier to add, to modify, to support, and to understand.