



Vcentra Case Study



Case Facts

Sector:
Federal Government

Organization:
U. S. Department of Justice

Customer Profile:
The “largest law firm in the world,” the USDOJ consists of numerous legal business units as well as non-litigating organizations including the FBI, Bureau of Prisons and its executive branch, the Justice Management Division.

Business Problem:
Large-scale office automation program off to a false start. Early roll-outs plagued with problems. Program seen as a failure.

Solution:
Bring in an independent consultant to troubleshoot the ailing program. Re-engineer the problematic architecture. Bolster the PMO with continued high-level engineering support.

Justice Consolidated Office Network: How Critical PMO Consulting Saved a Program in Trouble

Executive Summary

This case study describes a situation that frequently occurs in government information technology programs today: without deep technical analysis and insight at the enterprise level, program management office staff may not be delivering the IT vision of the CIO or services that executive staff require. PMO executives may find themselves questioning the value and/or strategic direction of the program.

In some cases, an IT program can get “off-track” and fail to deliver the business value that the program was created for. Numerous technical problems or lack of correct functionality can result in the program being seen as a failure. Fortunately, with the right technical guidance, a PMO can turn a stagnant or failing program around, and change potential disaster into dramatic success. This case study describes one such example.

In late 1997, the U.S. Department of Justice (DOJ) was faced with a program in trouble—the fledgling Justice Consolidated Office Network (JCON). With early deployments proving to be unstable and unmanageable, the JCON PMO brought in a team of experts to assess critical problems of JCON, and make recommendations for a new architecture.

Working closely with members of the JCON PMO and the Deputy CIO, and senior members of Vcentra conducted a thorough analysis and created a draft “strawman” architecture to address problems in the original JCON architecture. The team achieved unanimous approval of the new architecture from both technical and senior management staff at the DOJ. Next, the team proceeded to design a full-scale “JCON II” architecture for its first DOJ business unit: Justice Management Division – the office of the Attorney General.

After a highly successful first deployment, the DOJ expanded the team and installed them as the JCON PMO advisory group in charge of the new enterprise architecture they had created. Over the following years, the team has facilitated the PMO by creating several subsequent evolutions of the JCON II Standard Architecture, along with the Standard Test Plan and System Development Life Cycle.

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"As a result of the outstanding work of the JCON architecture team, JCON has become a model mission critical office automation system which we are very proud to be implementing in the Department of Justice senior management offices and litigating components. As JCON is rolled out to the 20,000 target users, we expect the efforts of the architecture team to yield a reliable, secure and cost effective system through which the Department will be able to optimize the use of electronic legal and management tools in fulfillment of its mission."

- Mark Boster
Deputy Assistant Attorney
General, Information
Resources Management

Background

In September 1997, the DOJ's JCON program was beginning to fail. The new office systems architecture was plagued by a growing list of technical problems. Early JCON roll-outs proved to be inherently unstable, and complex to manage and administer. Additionally, the total cost of ownership was rising with the increased demands on support and engineering. Above all, there was no indication that the problems in the architecture could be solved.

Faced with a failing program, the Deputy CIO and the JCON PMO took decisive action. They brought in a team of specialists, independent from any existing contractor and vendor-specific solution, who could provide a fair, undiluted analysis of the situation. The PMO wanted to know what went wrong, and what had to be done to get the program back on track. A procurement was initiated, and the JCON PMO selected senior experts currently working for Vcentra.

Team and Methodology

The team was composed of several domain experts, each with expertise in the specific problem areas of the JCON architecture. These were:

- A project manager who would also serve as the team's network operating systems architecture expert
- An enterprise architect who would focus on the organizational email system
- A network infrastructure specialist
- A Unix administration specialist (JCON included the specification of Unix based hosts)
- A meeting facilitator to assist DOJ management in group decision processes

The team's goal was to identify which JCON hardware and software components should be changed in the JCON Baseline to affect a standard JCON architecture that could be implemented as an Enterprise solution, that would resolve the current JCON problems, and would provide a future strategic direction for the Department's office automation systems.

The study was comprised of four tasks designed to provide for a review of the existing JCON architecture to give the team a baseline understanding of the current environment; develop a "strawman" JCON Architecture as an extension of the Baseline that could be presented to the JCON business components for their review and comment; hold and facilitate JCON design workshops directed to build consensus among the components on the strawman architecture; and develop a Target JCON Architecture based on the strawman while incorporating the comments and concerns of the components. The study team also developed a JCON Architecture Lab to conduct preliminary and ongoing testing of the evolutionary architecture changes and any changes recommended for the existing JCON implementations.

The team's approach for the study was to work in close concert with key Department management and technical staff to conduct the four project tasks. The team relied heavily on existing JCON documentation and interviews with component technical and executive staff to develop the baseline understanding. This understanding was further augmented with the JCON business requirements through a Planning Workshop held with senior business executives.



Analysis and Findings

For three months the team conducted interviews, group workshops and documentation reviews. The original set of business requirements was re-validated, and found to be comprehensive but lacking in priorities. Many of the business units had originally made sure to include various small pieces of functionality, but had not emphasized the main core functionality required of the system. The team managed to create a single, core functional specification that included the common requirements of all the JCON business units.

The team proceeded to assess the technical problems the architecture. They met with major software vendors representing both existing JCON software and hardware systems as well as vendors of potential replacements. All systems were installed in an architecture lab and critical analysis of the specific JCON problems was performed. The team arrived at three major findings about the original JCON architecture.

Failure of complex integration

The concept of the original JCON was that if the architecture dictated the use of open standards, successful integration would be guaranteed. Unfortunately, this turned out to be a false assumption. The Unix operating system was chosen for servers, TCP/IP networking was required, and Windows 95 was selected as the desktop operating system. The Novell GroupWise email system was chosen to run on the Unix servers.

The original JCON system components required complex integration to work, and some of the software never properly worked together. The GroupWise email system proved to be unreliable on Unix, a platform that few customers deployed. Further, GroupWise required direct file system access to read and write message data. The NFS Unix network file system proved to be a poor choice for this. While GroupWise was officially supported on Unix, it was meant to run on NetWare servers. NFS used different record locking mechanisms that caused the system to be unreliable and crash-prone. Additionally, PC's running Windows were having problems of their own accessing NFS. Most users experienced problems with simple drive mapping and other file operations.

Finally, the JCON system was complex to manage and administer. Because there was no user account synchronization between the Unix servers and GroupWise, users were forced to follow multi-step procedures for something as simple as changing a password. Network administrators were having a poor time as well – due to the complex integration, many admin tasks were complex, and there just wasn't enough high-end Unix talent available at the DOJ.

Re-engineering of the architecture for each deployment

Another problem with the original JCON was that each business unit found themselves re-engineering the JCON architecture to suit their needs. Because the original philosophy of JCON was that the standards chosen would enable simple engineering, the business units worked with the leeway they had within those standards. Each group had created their own unique environment, some with better results than others. This approach failed to guarantee results for each group, and the cost was necessarily higher than using a standard architecture. As each business unit re-engineered the JCON solution for their specific needs, they faced the same challenges over and over again, without leveraging previous successes.

Inability to share information across business units

Lastly, the loose standards of the JCON architecture prevented easy sharing of information across different business units. Too many differences in the systems of each business unit made something as simple as a common shared file area become an integration nightmare. The "standards" approach failed in this case, because the standards chosen were too few and no strong integration was available.



Results

The team's analysis resulted in a recommendation that JCON must be re-designed with a homogeneous architecture for core office automation services. This left two primary vendors with product offerings that satisfied DOJ's requirements: Microsoft and Novell. Based on a better functionality match and industry trends, among other information, the JCON business units unanimously agreed that a homogeneous Microsoft office systems architecture was the right choice for JCON II. The team was next tasked with developing the "strawman" architecture for this new design.

JCON II "strawman" architecture

The Strawman JCON Architecture was developed using the criteria identified during the Planning Workshop, technical research into mainstream office automation systems, case studies of major office automation implementations, and interviews and meetings with leading software vendors. The study's findings and the recommended Strawman JCON Architecture included in the final study report was presented to the component's technical staff during the Design Workshop. Using the information gathered during the Design Workshop, the strawman architecture was refined into the Target JCON Architecture.

Full-scale system design

After receiving approval from USDOJ executives, the team developed a full-scale system design that included the identification of major components, interfaces to the system, testing strategies, and test plans. The design specifications were thoroughly tested in a lab environment that utilized LAN/WAN, workstation, and server hardware as well as software components that made up the new JCON II architecture. This Validation Task consisted of several sub-tasks:

- Develop a JMD JCON Design for JMD based on the Target JCON Architecture.
- Design a JCON Lab sufficient to thoroughly test and validate the Target JCON Architecture.
- Equip the JCON Lab by acquiring the hardware, software, and other items necessary to convert the current JCON Lab to the Target JCON Architecture and JMD Systems Design.
- Develop, test and validate a JCON Architecture Test Plan to be executed in the lab against the Target JCON Architecture and JMD Systems Design.
- Design a JCON LAN Infrastructure to provide the optimum LAN infrastructure design as part of the network design for JMD.

The new JCON II Architecture was a homogeneous design comprised of Microsoft NT Server, Microsoft Exchange, and Microsoft Windows 95.

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Full lifecycle support

Members of the Vcentra team provided engineering support services to the JCON PMO since between 1998 and 2000. During that time, the team has created the initial and several subsequent versions of the JCON II Standard Architecture, along with the Standard Test Plan and all System Development Life Cycle (SDLC) documents. Additionally, the team had researched and implemented many new technologies and enhancements for the JCON II system, including an upgrade to an Active Directory environment, secure dial-in system and redundancy systems. The team also managed the JCON PMO lab since the advent of JCON II. The lab was used for interoperability testing as well as Research & Development.

The Vcentra experts have worked with all of the JCON components that have deployed JCON II.

Conclusion

The JCON II architecture was first deployed in 1998 in the DOJ Justice Management Division—the office of the Attorney General. The team was immediately put to work on further JCON architecture design and planning. As an independent group in support of the JCON PMO, the team was not only able to provide the critical analysis needed to turn around the failing JCON project, but has also evolved to become the center of JCON architecture and design.

Some of the team's further activities include: planning and assessment for Active Directory, base Windows 2000, Windows 2000 new features, mandatory application testing, migration studies, Windows 2000 and Exchange 2000 security enhancements and remote access capabilities; Active Directory high-level and detailed system designs; and Business Plan, Functional Requirements document, Alternatives Assessment.

About Vcentra

Vcentra is a small business specializing in superior information technology services for government and commercial clients. Reflecting the Vcentra commitment to quality, Vcentra specialists are VMware certified, and have received quality accolades from the Deputy Assistant Attorney General, US Department of Justice (DOJ) and Assistant Director, DOJ Systems Technology Staff. Our frequent participation in numerous technical conferences, conventions and seminars helps us maintain exceptionally high levels of technical expertise.