

NMCI Legacy Application Migration Planning and Execution

As the NMCI implementation progresses, the next phase of legacy application planning and migration is of critical importance. A significant challenge exists in the transforming of these applications into the NMCI environment.

The goal is to:

- (1) Produce a portfolio of applications available across the Navy enterprise while continuing to run the business of the Navy.
- (2) Enable the Navy to realize the goals of Seapower 21, FORCENet, Network Centric Warfare and deliver on the tenets of the Agile Enterprise to respond to the needs of the warfighter.
- (3) Facilitate NMCI seat roll out, reduce application portfolios, and enable a Navy Enterprise Architecture.
- (4) Provide return on investment by creating reusable components, standardized product sets, and consolidated applications to save on licensing costs and leverage legacy application investments.

The Navy has made significant progress in the rationalization of applications. The migration planning and execution process needs to take advantage of this work and to take into account the business process and requirements of the users. The output from the BCA filter will be used to create a roadmap for a migration of these applications. There is no single "silver bullet" that will provide a complete solution for application migration. An integration of many approaches and tools while accounting for a Navy specific environment is the best method.

As a major provider of IT and business services to the Department of Navy, Science Applications International Corporation (SAIC) has developed the Application Planning and Migration Service to serve the Navy in this important process. SAIC uses the techniques for modeling the "Agile Enterprise" by integrating the best practices of Portfolio Rationalization, Business Process Modeling, Extreme Programming, Enterprise Architecture Frameworks, SEI/CMM Level 3 Software development methodologies, and NMCI Subject Matter Expertise. We authored the Legacy Application Transition Guide, the Navy Enterprise Application Developers Guide, the NMCI Release Development and Deployment Guide, Business Enterprise Architecture for Logistics, the Navy FORCENet Architecture, and the Department of Homeland Security Enterprise Architecture. From that experience, we developed a Navy specific Legacy Application Transformation Blueprint.

The Migration Planning Phase encompasses the following steps:

1. Establish baseline BCA Filter results including application disposition, and taxonomy for application groupings. Assemble additional network and software artifacts. Use Gap Analysis to determine what data still needs to be collected on a micro level of the organization (Echelon II, Base, Code,

- and Program). Establish an “As Is” architecture and list of “Candidate Applications”.
2. Utilize BCA scoring of applications (business capability support, alignment with mission, technical fitness, maintenance costs, risk) and provide validation by running the data through a decision matrix/rationalization tool to derive a technical/business disposition for these applications. The output is evaluated for potential groupings of functionality and candidates for consolidation compared to BCA results. A timeline and milestones for migration execution, Rough order of Magnitude estimate of migration costs, and feasibility study is developed from this knowledge.
 3. Analyze software and network architecture from a holistic standpoint, not just on an application by application basis. Take into account multiple systems interfaces, interdependencies on other customers, potential for functionality consolidation, funding availability, and impact on business process and requirements.
 4. Use the results to design and develop a Migration Plan which contains a Navy specific “To Be” enterprise architecture that includes an Application Migration Plan, a technical plan that includes migration for data, platform, languages, databases, and applications. Include a plan to address business requirements and processes, an acquisition plan and a project plan for short and long term milestones and deliverables.

The seven technical options for Legacy Application Migration Execution Phase to transform applications into NMCI include:

1. Code Transformation Technologies: Provide solutions to transform the code of legacy application into NMCI compliant applications from our team members, TSRI and Blue Phoenix e.g. Cobol/Fortran, VAX Basic into C++/C#/Java on Windows/Unix platforms as evidenced by the Navy Logistics FAM Legacy Modernization Pilot.
2. Services Oriented Architectures: Leverage legacy applications by exposing functions and capabilities out of these applications which can be consumed as reusable software components. This option allows for an incremental approach to application migration while facilitating the logical groupings of like applications and functionalities.
3. Terminal Emulation Services: Technology such as Citrix, Windows Terminal Services, 3270 Emulation, 3270 Web Services facilitates data access. This is an effective approach to accessing legacy application data, while planning for long term retirement of the application.
4. Rapid Application Development (RAD) tools: Visual Studio.NET and Visual Websphere provide the ability to re-engineer and develop new applications using spiral development techniques. Model the business processes using Business Process Language enables delivery of application in short time periods.
5. Interim Patch Solutions: Focused time fixing the applications with regard to Group Policy Object, Firewall and BLII issues ensures that applications will work within NMCI, as a short term fix.

6. Enterprise Resource Planning (ERP) Systems: COTS packages such as SAP and Peoplesoft can serve standard business requirements that are well suited to this approach e.g. Human Resources, Financial Management, Supply Chain, etc.
7. Application Hosting: Server consolidation provides measurable return on investment through an Application Service Provider model and takes the Navy out of the business of supporting IT.