



TECHNOLOGY AUDIT

# Apt Methods and Tools

Fujitsu

## SUMMARY

### CATALYST

Organizations involved in large-scale software development often realize that every project holds its unique challenges, which requires them to tweak the standard set of development approaches available in commercial application lifecycle management (ALM) suites. Key factors that shape the process include the influence of the customer, the project’s size, the team’s experience, and location. To support these needs while retaining the benefits of a proven approach, Fujitsu Europe has developed an ALM solution internally, called Apt. Highlights include:

- Ovum finds this solution to be robust, and is impressed by the range of methodology frameworks that it offers.
- Customers can choose to have the solution hosted by Fujitsu or on-premise.

### KEY FINDINGS

<b>Strengths:</b>	<ul style="list-style-type: none"> <li>✓ Supports the Essential Unified Process (EssUP) (lightweight, flexible expression of UP) as well as established best practices such as use cases, iterative development, architecture-driven development, and more.</li> <li>✓ Sophisticated Agile cost modeling for project costing, estimation, and planning.</li> <li>✓ Web-based, managed service for Fujitsu teams and partners helps to deliver quality solutions.</li> <li>✓ Has an enhanced toolset to form an integrated, advanced ALM system that is process aware.</li> </ul>
<b>Weaknesses:</b>	<ul style="list-style-type: none"> <li>✗ Currently only available as part of a Fujitsu professional services contract.</li> <li>✗ Subversion does not have the benefits of a distributed source control tool.</li> </ul>
<b>Key Facts:</b>	<ul style="list-style-type: none"> <li>i Apt is also available as a “Satellite,” a wholly independent, controlled and supported instance of Apt, for customers requiring an on-site solution.</li> <li>i Apt now has integrated test management capabilities.</li> </ul>

## OVUM VIEW

ALM solutions are continually evolving as vendors advance and refine products and suites. New processes and methodologies are constantly added to the existing repositories through the latest Agile practices, while, on the tooling side, a host of new features – such as the addition of process and workflow support, test management, build management, and business intelligence (BI) integration – are added. However, Ovum believes that, at its core, an ALM solution should have four aspects: a cross-cutting set of functionalities that apply throughout the lifecycle and are tightly integrated, such as change and configuration management and workflow; support for processes and methodologies that is easily accessed from tools and can guide the use of such tools; an integration layer with web-based modules spanning the ALM disciplines that can be easily plugged-in as needed; and an interoperability layer for connecting to external integrated development environments (IDEs), development tools, other ALM tools, and application programming interfaces (APIs) for custom development.

Fujitsu Europe has developed its own ALM solution, called Apt, and is using it to offer application development services to external clients. Ovum finds Apt to be a strong ALM offering for enterprise-level projects. The solution contains all of the aforementioned elements of ALM, and has added critical functionality (such as test management) since Ovum's last Technology Audit in August 2009 (*Fujitsu – Apt Methods and Tools*). Apt is available in Java or .NET editions: the former edition is Eclipse based, leverages open source software and licenses a number of tools, particularly from Atlassian; while the latter edition is based on Microsoft Visual Studio Team System.

Through its collaboration with Ivar Jacobson International (IJI), Fujitsu offers EssUP, an Agile methodology, as well as Fujitsu's traditional waterfall and other iterative/Agile variants. In addition, Fujitsu services use a cost modeling approach for project costing, estimating, and planning that models an Agile-like incremental delivery lifecycle. Ovum believes that this is one of the differentiators for the solution. Overall, Ovum finds Apt to be a flexible, versatile ALM solution that can meet the needs of both traditional customers insisting on a waterfall lifecycle, to customers that prefer modern Agile development methodologies.

### Recommendations (H3)

- **Large-scale enterprise projects** – Ovum believes that the combination of Apt and Fujitsu Cost Modeling offers a superior application development service, particularly suitable for large-scale enterprise projects.
- **Projects looking for ALM software-as-a-service (SaaS)** – The resources and services required to implement Apt are provided by Fujitsu's hosted services in their data centers, leveraging Fujitsu's existing corporate infrastructure and providing services such as servers, local area network (LAN), wide area network (WAN), service management, and help desk. In addition, the Fujitsu Apt team provides architecture, development, and support services for the Apt components. Ovum believes that this is ideal for projects that are looking to avail themselves of ALM as a service.
- **Projects with mixed development processes** – Apt is particularly well suited to environments where teams follow a range of different processes and methodologies. These teams can still use the same ALM tools while working in different work styles.



## FUNCTIONALITY

### SOLUTION OVERVIEW

The Fujitsu group, headquartered in Japan, is one of the largest IT companies in the world. The company provides IT-based business solutions for the global marketplace, combining a worldwide group of systems and services experts with highly reliable computing and communications products and advanced microelectronics. The group has a very large presence in the UK and Ireland as a provider of software development and management services, which has been reinforced by its acquisition of TDS in 2006 and of Siemens' 50% stake in Fujitsu Siemens Computers.

To support its clients' needs on an ongoing basis, the application services business unit within Fujitsu UK and Ireland required a collaborative software development solution. The solution was required to support various approaches to software development, meet the needs of multiple internal projects, and enable developers/managers to tailor development approaches based on the influence of the customer, the project size, the team's experience, and location. The vendor therefore developed an ALM system internally to meet its needs, which has henceforth been extended to become part of its service offering. The solution, called Apt Methods and Tools, has been built with a combination of commercial, open source, and Fujitsu-developed tools.

Fujitsu leveraged open source software (OSS) to reduce costs, and filled in the missing elements in the ALM portfolio by licensing tools from a number of vendors, particularly Atlassian. Fujitsu also added the necessary plug-ins and integration components to bind these tools into a cohesive ALM system. For the process/methodology support in Apt, Fujitsu chose a framework developed by IJI, called EssWork. EssWork is a practice-oriented framework for applying processes and methodologies to real world situations with precise task-level guidance. Fujitsu has an ongoing collaboration with IJI, and has implemented a number of practices for use within EssWork. The framework uses an Extensible Markup Language (XML)-based meta-language that allows high-level processes to be defined and task-level guidance to be generated automatically.

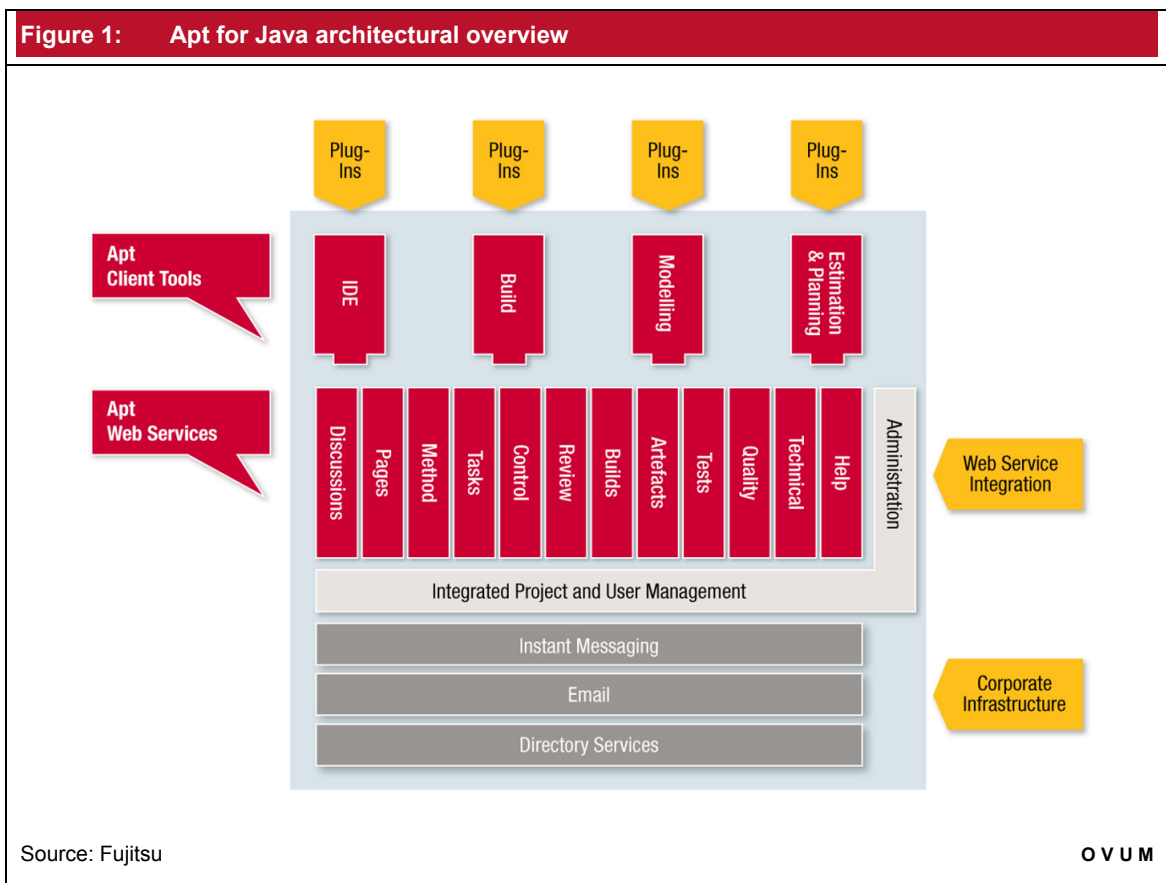
Apt has been in use within Fujitsu for about three years now. It has over 1,300 users and has penetrated 33% of Fujitsu application development projects within the EU. Since Ovum's last audit of the solution in 2009, the number of users has grown by almost 50%, which is a clear indication of its growing popularity within the Fujitsu group. The system is hosted in a Fujitsu data center and is delivered as SaaS, with the client-side being web-based, making deployment straightforward. There is the option of packaging a free-standing project environment, as a satellite SaaS that can be supported by Fujitsu's central support team while being managed locally; this offering is typically used where there are particular enhanced security needs, such as in government contracts.

Although Apt is still largely an internal ALM system used by Fujitsu staff, it represents a significant investment in offering state-of-the-art tooling and process/methodology support, and there remains a possibility of Fujitsu productizing it (although this has not happened so far). The Fujitsu group also has another ALM platform in use; however, Ovum believes that Apt is increasingly being used inside the organization as a holistic application development lifecycle management solution rather than as a point solution, and this bodes well for the product in the long term.

This Technology Audit examines Apt as a component of Fujitsu’s application development services, which are typically provided by Fujitsu teams working at UK locations, both near-shore and offshore. Ovum believes that Apt is central to Fujitsu’s forward plans in offering state-of-the-art, process-supported ALM as part of its application development services.

Applications are now composed through a variety of development environments. However, at the enterprise level, a significant proportion of the developer community uses either Microsoft .NET or Java. In some cases, heterogeneous environments that combine both technologies may also exist, in addition to other technology and languages choices. Keeping these preferences in mind, Fujitsu has made Apt available in two flavors: an open source/Java environment edition; and a Microsoft developer edition. The Apt for .NET version is based on MS Visual Studio Team System 2008, with Apt providing a number of additional tools and services (such as integrated practice-based methods through IJI’s EssWork), and support and integration for modeling tools such as Sparx Enterprise Architect. The vendor introduced an upgraded service for .NET based on Visual Studio 2010 in Q4 2010.

On the other hand, Apt for Java is composed from commercial, open source, and Fujitsu-developed tools, which Fujitsu has integrated seamlessly in a single coherent ALM solution. The Apt for Java variant’s architecture is shown in Figure 1.



As in the diagram, the product can be abstracted to three logical layers, which Fujitsu calls Apt Client Tools, Apt Web Services, and Corporate Infrastructure Integration.

- Apt Client Tools** – This layer provides the core IDE (Eclipse-based for Java and Visual Studio Team System-based for .NET), supporting additional functionality such as model-driven development, build automation, and estimation and planning of tasks. Build automation provides a modular extensible build environment, with dependency management, workflow, and automated reporting. Modeling tools support model-driven architecture (MDA), providing formatted documentation exports and traceability analysis reports. The modeling tool can run as a standalone, or can be integrated with the test management module.
- Apt Web Services** – Apt Web Services provide integrated web-based access to functional areas within the Apt ALM suite through appropriate web-services technology, such as Simple Object Access Protocol (SOAP) and XML-remote procedure call (RPC). Various modules classified under Apt Web Services are shown in Table 1.

Table 1: Apt Web Services descriptions	
Apt Web Services	Purpose
Discussions and pages	Serves as a central location for all team-based collaborative discussions and informal documentation.
Method	Contains the team’s tailored formal processes and guidance.
Tasks	Helps track defect and work items. Is integrated with the methods service and MS Project, and provides detailed management reports.
Control and review	Provides version control services via a web-based user interface that supports queries and ad hoc peer reviews.
Builds	Builds automation schedules and continuous integration from a web-based user interface. Allows historical reporting of quality metrics.
Artifacts	Is a repository for build artifacts and their dependencies. Acts as a proxy for third-party repositories.
Tests	Web-based test management solution that is integrated with requirements, defect tracking, and technical reporting.
Quality and technical	Provides access to customizable quality standards and technical documentation.
Administration	Is a single location for administration of users and their associated projects, and includes tools to quickly commission new projects.

OVUM

- Corporate Infrastructure Integration** – The Corporate Infrastructure layer helps applications such as email, instant messaging, and directory services to integrate with Apt’s infrastructure layer where appropriate.

Apt is available in two flavors: an open source and Java environment edition; and a Microsoft developer-targeted edition. The former comprises a number of tools that are combined to form an integrated ALM system. Those tools, which are otherwise used unchanged in the Java edition of Apt, are as follows:

- **Atlassian** – Bamboo (continuous integration server); Clover (testing code coverage analysis tool); Crucible (peer code review tool); and FishEye (source code repository insight tool).
- **OSS** – JUnit (unit testing framework); Mylyn (task management for use in Eclipse); Openfire and Spark (real-time instant messaging (IM) communication platform, where Spark is the IM client); Abstract Horizon, Proximity (a Maven artifact repository manager and proxy for corporate intranets); and Tigris and CollabNet, TortoiseSVN (Microsoft Windows client for Subversion).
- **rPath rBuilder** – Assembles OS, middleware, and applications into a software appliance for running in physical, virtual, or cloud environments.
- **OSS, Subversion** – Source version control system.

Fujitsu has added intellectual property to the following tools in the OSS/Java version of Apt:

- **Atlassian, Confluence** – This is enterprise wiki collaboration software, to which Fujitsu added Really Simple Syndication (RSS) features.
- **Atlassian, JIRA** – Task and defect tracking management software. Significant enhancements by Fujitsu cover planning with integration between EssWork and Microsoft Project; management reporting, including baselines versus actuals, earned value, effort profiling, and more; commit acceptance integration with Subversion; and synchronization of JIRA user groups with Lightweight Directory Access Protocol (LDAP) directory service.
- **OSS, Checkstyle** – Java coding standards support. Fujitsu enhanced this with Eclipse and Maven plug-ins.
- **Sparx Systems, Enterprise Architect** – UML 2.1 modeling. Fujitsu enhanced this with requirements management reporting, system requirements UML profiling, document generation, and the export of requirements.
- **OSS (Apache), Maven** – Build, reporting, and documentation management. Preconfigured for Apt, with additional Maven archetypes, and enhancements to a number of Maven plug-ins.
- **OSS, phpBB** – Forum software. Fujitsu has added authorization and reply to email features.
- **OSS, PMD** – Static code debugging tool and code complexity assessment. Fujitsu added patches and Apt corporate standards configuration.
- **OSS (Tigris and CollabNet), Subversion** – Software change management system. Fujitsu has added a commit hook to ensure all repository log messages reference a task in JIRA.

- **OSS, Eclipse** – Enhanced with plug-ins, and preconfigured and packaged.
- **IJI** – EssWork.
- **Microsoft, Microsoft Project** – Project management. Fujitsu has added planning with integration of Microsoft Project, EssWork, and JIRA to provide methods-based planning and task execution.

The Microsoft variant of Apt is built from the following tools:

- **Microsoft, Visual Studio Team System** – For the .NET edition, this product provides a comprehensive ALM system, and uses the latest Visual Studio 2010 edition.
- **IJI** – EssWork.
- **Microsoft, Microsoft Project** – Project management.

As a result of Fujitsu following a policy of building-out Apt from existing tools on the market, it has been able to cover the many features expected in an ALM system within a few years of embarking on the solution. In addition, the development team keeps adding features and functionality based on customer demand. In its Technology Audit conducted in June 2009, Ovum noticed the absence of some notable areas of ALM in the Apt portfolio, such as IT governance, aspects of test management, and application performance management. Since then, however, the vendor has plugged these gaps to a significant extent. The current version of the software includes enhanced management reporting in the Java edition, which provides new reports such as burn-down charts and earned value analysis. Test management functionality has also been added to the Java edition, and the technical refresh of various component tools (including EssWork 3) is now underway, with progressive releases planned for Q4 2010 to Q1 2011. IJI has released a new and improved browser user interface (UI) and a simplified kernel for EssWork 3, which will ease adoption of the practices-based approach.

Overall, Ovum is impressed with Apt as a comprehensive ALM system that combines automated tooling with excellent support for processes/methodologies. The solution has a variety of work processes that will appeal to novice developers (such as task-level guidance) and more experienced developers alike. Given the large number of developers within the Fujitsu organization, including employees operating from a number of offshore centers, it is prudent of Fujitsu to have put in place such support for work practices in order to ensure a common level of quality control, as this helps Fujitsu to manage the scale of its operations. The current Agile practices in EssWork form super-sets of popular Agile methodologies like Scrum and Extreme programming. Developers may also customize out-of-the-box practices for these popular approaches to interface them with existing work processes.

## SOLUTION ANALYSIS

### Process and methodology support

With a large variety of traditional and Agile methods of software development in use, support for multiple processes and methodologies is critical for the success of any ALM suite. This parameter deals with the degree to which the solution supports template-based creation, modification, implementation, and monitoring of process instances within a development project, as well as the tools it provides to facilitate the operational management of such processes.

Apt uses the EssUP process and EssWork tools to deliver process/methodology support. In collaboration with IJI, a range of practices are available through EssWork that support and help developers to maintain an appropriate discipline when following a chosen approach. EssWork supports the composition of practices to provide a dynamic, integrated content view of composed methods. Fujitsu has been working with IJI to develop further practices, some for general release into the EssWork user community and some for Fujitsu's own use. The .NET edition of Apt now uses the latest version of EssWork, EssWork 3.0, providing personalized support for role-based entry points. Using this version, users will be able to view and gain quick access to relevant information based on their responsibilities. Architecture improvements, on the other hand, will aid in large-scale deployment for organizations that standardize on EssWork and the Essential Practices. To further support distribution, EssWork 3.0 supports the internationalization of practice guidance in multiple languages.

Fujitsu also combines its cost modeling approach with Apt, which has been in use since 2006. The approach uses a "use case" survey, together with a survey of supplementary factors that the customer fills in; an Excel application then produces an estimate, a suggested schedule, and a score card that highlights risk areas or incomplete aspects. The inputs to the surveys are the normal outputs of the activities set out in the Apt project-delivery methodologies. The benefit of this approach is that Fujitsu estimates what it will do and then does what it has estimated. The model covers the methodology selected, program functions (requirements management, testing, tools support, global delivery, etc.), and transition to service, and produces a schedule. Problems of schedule compression can be identified early as a result of the modeling. The size of the project is estimated in terms of use case points. The effects of non-functional requirements and environmental factors are incorporated using either the use case estimation method, or Constructive Cost Model (COCOMO) II. The use case points approach is similar to function points, but is applicable to the pre-design stage. COCOMO II is found to be particularly effective for larger-scale projects, where its more appropriate, exponential-based models kick in.

In Ovum's opinion, the EssWork component and Fujitsu cost modeling are key benefits of working with Apt. Projects can have processes tailored to the most appropriate methodology using combinations of Apt practices. Practices capture work patterns and sequences linked to a methodology, and Apt makes this guidance available to team members as required at various stages of the lifecycle. The Apt practices are managed by the Apt framework, and this ensures that they work together to link into a coherent set; what Fujitsu describes as a "lean/right-weight" process.



The Apt EssWork practices are treated as equals in the sense of the appropriate practice being selected according to project needs. Thus, waterfall or iterative lifecycles can be selected without needing to change any other practices. This degree of openness can be a hazard to novice developers without further guidance, but it is assumed that project managers and team leaders with sufficient experience are the ones to decide which practice is appropriate for a project. Fujitsu has a dedicated Apt support team that can guide project teams in a selection of methodology components. While Ovum views orthodox waterfall as having many inherent weaknesses, Fujitsu does face customer environments where upfront sign-off at various lifecycle stages is immutable, and therefore at least a guided practice is available for such a scenario.

Apt offers a library of good practices, including those that form EssUP, a lightweight process developed by IJI and founded on the principles of agility, openness, extensibility, and easy tailoring. Apt practices are differentiated from many other processes/methodologies in supporting the full commercial lifecycle, from bid to deployment. Practices can be composed by using any combination of industry standards such as Capability Maturity Model Integration, Agile, Scrum, or Rational Unified Process, internal organization best practices, or industry-required practices for governance and compliance. EssWork is a key ingredient in both the Java and the .NET flavors of Apt.

### **Collaboration**

Collaboration is an area that has received good support in current ALM suites, as globally distributed work is quite common today. Collaboration support assists with easily tagged work items that have associated documents and notes, easy visibility of work item ownership and responsibility, knowledge bases and exchange facilities, presence awareness of colleagues, and easily transferred work packages that include all associated files so that developers can down their own work and rapidly switch to a colleague's work to support collaboration.

Because Apt services are accessed through the Fujitsu Intranet, they are available to dispersed teams across multiple countries such as the UK, Finland, Russia, Spain, Belgium, and Australia. Ovum finds Apt's collaboration services to be well suited to supporting multi-location teams. All Apt services support team collaboration, enabling team members to contribute, share their work, and hold discussions. Apt also provides a service for instant messaging between team members and delivery of automated notifications from other services such as continuous integration, task management, wikis and forums.

The Java/OSS version of the software uses a number of third-party solutions to provide a robust collaborative experience. For example, Apt for Java uses Confluence, an enterprise wiki software for sharing and editing content, online collaboration, knowledge management, document management, and file sharing. Also, other aspects of collaboration, such as the collaborative modeling practices that are used in MDA approaches to development, are provided in the Java version by Enterprise Architect, which uses UML 2.1.

### **Solution architecture**

The Apt platform contains a workflow engine that is integrated with the rest of the suite, including build automation and reporting. There is an integrated source code management module. Apt includes a Subversion service to provide version control over source and other items such as project plans and formal documents.

Traceability is also provided between check-in activity and work items from task management. In its latest version, Apt has improved its management reporting functionality (especially in the Java edition) with new reports such as burn-down charts that report against auditable baselines and earned value analysis. Apt's management reporting module can also report aggregated effort and estimated time to completion against operational and contractual baselines. The reporting module is fully integrated with the rest of the solution, including critical areas such as test management (for traceability analysis reports) and builds (for historical reporting of quality metrics). The vendor plans to release a newer version of its management reporting module in Q2 2011, which will support the tracking of agreed values, through initial cost model attribution to delivery. The solution itself is modular in nature, which helps if deployment is carried out in a phased manner.

### **Test management**

Ovum reviewed Apt in 2009, and concluded that it was missing a critical piece of functionality, namely, test management. In its latest version, the vendor has plugged this gap and added a test management module to the Java edition. Apt test management tools and services provide a means to create and manage test cases, create test plans and strategies to align with software releases, record test execution, track the status of associated defects, and report on the current position with respect to testing, defects, and requirements. Integration with third-party test management tools is also provided. Similar to the other parts of the suite, the test management solution is also web-based and uses an open source solution, TestLink. It is also closely integrated with the requirements modeling, defect tracking, and technical reporting components of the solution. Ovum finds the test management capabilities of Apt to be adequate for the needs of the vendor's customers.

### **Model-driven development**

Apt allows the use of modeling tools to represent design, with the potential for some code-generation if required. The vendor uses the Enterprise Architect solution from Sparx Systems and supports UML 2.1. Fujitsu clarifies that, although it can offer model-driven development and MDA, in practice it finds that most projects use traditional programming techniques, and this is an observation with which Ovum's customer base agrees closely. As a result, the key purpose of the model-driven approach in most Fujitsu projects is to provide traceability and understand stakeholder needs. In most cases, modeling does not lead to code generation directly. The vendor offers modular Java build environment tools such as Maven, which helps to assign context and meaning to models. These models can be referenced while implementation to trace back its connection to design. The test management module can be integrated with the modeling tool to offer requirements-driven testing, allowing visibility of test execution and coverage against requirements, and of where defects affect requirements.

## **PRODUCT STRATEGY**

### **MARKET OPPORTUNITY**

The target market for Fujitsu Apt is horizontal, focused on system integration and application development projects in the UK and Europe, and on global delivery projects. Projects are typically part of managed services (ranging from on-site, to near-shore and offshore). Fujitsu has supporting offshore centers in India, Kazan in the Russian Federation, and South Africa, and near-shore operations in Northern Ireland.

Target savings are 30% per Apt deployment on a project, achieved by delivering a combination of ALM and process/methodology choice that can yield cost savings and consistent and efficient project delivery. Fujitsu currently has about 1,300 users of Apt and is on track to achieve its plan of 1,500 users by 2011. The opportunity for Fujitsu is to become more competitive, delivering higher-value solutions as the application development market matures with adoption of Agile practices and ALM systems. While, in principle, projects may be delivered from any Fujitsu location, in practice the company has initially focused on projects in the UK and Europe with a significant element of offshore delivery.

## **GO TO MARKET STRATEGY**

The route to market for Apt is primarily direct through Fujitsu businesses. The business and technology partnerships that support Apt include collaboration with IJI (the creator of EssUP and EssWork) in Apt practice development and training and consultancy provision. IJI has provided the underlying methodology framework and process technology for Apt.

Pricing for Apt is normally bundled as part of a project. There is no licensing involved when Apt is used internally within Fujitsu. Typical Fujitsu application projects run from £50,000 to £10m+, within which Apt costs are relatively low. Support and maintenance costs are incorporated within project pricing.

New Apt functionality releases are made available on an (approximately) quarterly basis. The most recent release has seen new management reporting in the Java edition, which provides new reports such as burn-down charts and earned value analysis. As mentioned earlier, test management functionality has also been added to the Java edition, and the vendor is currently releasing integration with EssWork 3 – a refreshed framework from IJI – in increments.

## **IMPLEMENTATION**

The resources and services required to implement Apt are provided by Fujitsu's hosted services in their data centers, leveraging Fujitsu's existing corporate infrastructure services such as servers, LAN, WAN, service management, and help desk. In addition, the Fujitsu Apt team provides architecture, development, and support services for the Apt components. Fujitsu provides standard training events to its staff to fit the skills and needs of any particular project team. In addition, Fujitsu's strategic partner, IJI, offers complementary practices, and methodology training and development services.

The average time to provision a new Apt environment for use by a project is between one and five days, although additional time may be needed for training. Teams compose a process to fit the particular needs of the project. Training comprises formal professional training given to leaders such as project/development managers, analysts, architects, and testing leads. The training programs include materials and courses that have been developed and are delivered in collaboration with IJI.

Technical support for Apt users is provided via centrally managed online forums that are accessible to all Apt users, and additional support is also available via the Fujitsu corporate help desk. There is further online support available from an offshore location.

There are two editions of Apt:

- Open source/Java environment based on Eclipse and hosted on Linux/Apache/Tomcat/MySQL.
- Two Microsoft environments based on Microsoft Visual Studio Team System (2008) and Visual Studio 2010, respectively.

Fujitsu's intellectual property lies in the integration of several third-party products, additional integration with the method and MS Project, management reports, and additional practices in the practice library. The key third-party partnerships are with IJI, Atlassian, Microsoft, Sparx, and rPath. Fujitsu is also participating in key open source communities.

Apt has been deployed in about 60 projects to date, with over 1,300 users registered. Customers are in the UK, Germany, Finland, Denmark, and Spain. Project teams are in these countries and several operate from multiple locations including offshore (Russian Federation, India).

Fujitsu has not indicated a roadmap for commercializing Apt, but states that this remains a possibility.

## DEPLOYMENT EXAMPLES

### **Apt Java Hosted Service**

This was the first deployment of Apt, beginning in 2007. Initially, the service had just one project user – a large (150 man team) development for the UK government, which has since expanded to over 1,200 registered users across the UK, Sweden, Belgium, Spain, Russia, and India, and 70 registered projects. The service was designed from the outset to support multiple projects across the UK and Europe and the usage of the service has grown steadily since inception as new projects have been taken on. The service operates 24/7/365, except for scheduled outages. Most of the projects using the service carry out software development and/or software maintenance. However, with the recent introduction of Apt test management, specialized application testing is gathering traction as a new focus of interest. The service was initially hosted on a single Primergy TX600 server with an identical offsite disaster recovery standby server. In 2009, the service was successfully migrated to a Primergy BladeFrame housed in a Fujitsu data center. This environment provides the scalability needed to cope with the growing user base for the service and a high level of resilience. Service availability exceeds 99.9%.

### **Apt Java Satellite (Secure Service)**

This project has 120 users in Fujitsu UK's defense and national security unit, to which Apt was first deployed in 2008. A secure, shared system was needed within a firewalled network environment. The technical approach used initially was to recreate the central hosted service, and although this was successful, there was no subsequent upgrade path. In 2009, this service (with user data) was migrated to the Apt Satellite release, which provided a number of useful upgrades to the toolset and enabled a future upgrade path. The Secure Apt Service has been the basis for the successful introduction of Agile development to this Fujitsu business unit. Since 2007, there have been many updates to the service, with minimal interruptions.



**Apt .NET Hosted Service**

This project has 140 registered users across the UK, Finland, Spain, and Russia, and 22 projects. It was introduced in 2008 to provide a hosted toolset for projects which needed to produce solutions based on Microsoft technology and which had a preference for Microsoft tools. Fujitsu introduced a tailored process template to support the use of EssUP with Team Foundation Server (TFS). Early adopters of the environment outside of the UK were in Finland, Russia, and Spain. Performance was assured by installing proxy TFS servers in each country. One of the first projects involved development teams based in Finland and Russia collaborating on a single project.

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