

Application Deployment and Integration RESEARCH PAPER

SevenMountains Software

7M Aspire

Abstract *7M Aspire is an application portal that enables deployment of applications from any platform, including Web, Windows, Unix and mainframe, to a thin-client such as a Web browser. It supports a centralised server-based computing model, and the delivery of software as a service, either from an external provider such as an ASP, or from an internal IT department. 7M Aspire includes license management and usage metrics that allow close control over application deployment, and a delegated administration model that supports widely distributed organisations. The product does not include portal applications such as knowledge management or collaboration tools, and the personalisation facilities are limited to the look and feel of the interface and the list of available applications.*

Butler Group believes that 7M Aspire can provide a Return on Investment for large enterprises with a complex IT infrastructure, through improved license management, reduced desktop support, and faster deployment times. It is possible to deploy the product in incremental stages, beginning with a pilot project covering a small number of applications.

<p>STRENGTHS</p> <ul style="list-style-type: none"> • Deployment of any type of application • License management, usage and billing metrics • Single Sign-On • Multi-level user profiling • Delegated administration 	<p>WEAKNESSES</p> <ul style="list-style-type: none"> • Requires additional applications to create an enterprise portal solution. • Would benefit from better personalisation of user interface.
<p>FUTURE POTENTIAL</p> <p><i>Although a young company, SevenMountains has created a technically excellent platform for application deployment. The concept of software as a service, whether delivered internally or externally, will become more popular as the Web services model matures, and 7M Aspire is well placed to grow in this market.</i></p>	

FUNCTIONALITY

PRODUCT ANALYSIS

7M Aspire is an application deployment portal that is designed to provide access to applications for a company's employees, customers, suppliers and partners from any location. Most importantly, the product manages and monitors this access to ensure that the company can remain in complete control of its applications, their licensing, usage, and administration.

Despite the best efforts of companies to manage their applications more effectively, there are several factors that make this more difficult.

- As organisations become increasingly globalised, application usage is distributed across a larger number of locations
- The computing environment is becoming more diverse. Companies must deliver applications from different platforms – such as mainframes, Unix-based systems, and PCs – and in different styles – including Web-based, host-based and client/server.
- Mergers and acquisitions add to the heterogeneous environment, and require different application sets to be integrated together.
- There is a strong business demand to shorten the time-to-market for new solutions, often without allowing time to integrate with the existing infrastructure.
- Software upgrades occur frequently and are often interlinked, creating a spiral where a new version of one application requires an update to another.

Given these issues, companies are understanding that a return to a more centralised computing model, particularly in respect of application deployment and management, can offer significant advantages. 7M Aspire addresses this need and delivers a comprehensive platform for application access, which the company targets at medium to large enterprises, and which Butler Group believes is capable of supporting the most complex computing environments.

Application deployment is a feature of the new generation of enterprise portals, although in very few cases does it appear high on the list of users' evaluation criteria. Few of these products are capable of providing access to all types of application, and there is little support for detailed management information. These are the areas where SevenMountains believes it adds value to an organisation – its product can provide secure access via a standard Web browser to applications located on any type of underlying system – mainframes, Unix systems, PCs, Web applications or any other environment. Furthermore, 7M Aspire offers control of licences and detailed usage metrics, so that all application access can be monitored and managed, and can provide a single sign-on (SSO) capability so that users do not need to be authorised separately for each individual piece of software.

It is important to appreciate that 7M Aspire is not an Enterprise Portal, with no tools for knowledge management, collaboration, searching or content publishing. It can however be used to deploy applications to meet these requirements, or can in turn be used to provide an application deployment capability as part of an enterprise portal product. SevenMountains is determined to focus on its core competencies, underpinning a cost-effective, centralised application architecture.

Butler Group believes that 7M Aspire has the technical capability to support this centralised model – it is based on open standards, with its management layer running on a Java 2 Enterprise Edition (J2EE)

application server, and can be distributed across multiple servers for scalability. It is specifically designed to integrate with a company's existing infrastructure, rather than to replace it, and applications do not require modification to take advantage of this deployment mechanism.

PRODUCT OPERATION

At the heart of 7M Aspire is the ability to provide access to any type of application running on any platform, via a Web browser or other client device. To achieve this, SevenMountains makes use of a number of deployment technologies, controlled by an overall management layer:

- Web-based applications - these can be hosted by the 7M Aspire server or on a separate Web server, and can be directly deployed to the Web browser
- Windows applications – uses thin-client delivery mechanisms including Citrix Metaframe, GraphOn GO-Global and Windows Terminal Services for deployment
- Host-Based/Legacy applications – can use a number of Web-to-host products, providing either a direct terminal emulation window, or mapping the terminal screen to a Graphical User Interface (GUI)
- Unix applications – supports X-Windows deployment and VT-based emulation

When a new application is to be deployed through 7M Aspire, it is first registered in an application repository, stored in a relational database. The registration process is wizard driven, and captures details about the style of the application, and its location, and allows parameters to be set controlling how the application should run. When the user requests a particular application, the management platform accesses the relevant details from the repository, launches the software, and from then on sits in the background, monitoring usage.

7M Aspire has a comprehensive security system, which uses Lightweight Directory Access Protocol (LDAP) for user authentication. The product will typically be integrated with an organisation's existing LDAP infrastructure, which obviates the need to hold multiple copies of user information. When first accessing 7M Aspire via a browser, the user signs on via a user name and password combination, which is encrypted using Secure Sockets Layer (SSL).

7M Aspire provides an optional SSO module, whereby a user signs-on once only, and is then automatically authenticated for all the applications to which they have access. To achieve this, a user's logon details are captured the first time they use a particular application, encrypted and stored in a database, and can then be passed to the application on subsequent instances. The SSO module handles password changes by requesting the new details from the user as appropriate.

Licence management is a key part of the system, and Butler Group believes that failure to track and control licences is a widespread and costly problem. When an application is registered with 7M Aspire, the administrator specifies the details of its licensing terms, and the license server module subsequently controls access according to this information. The software recognises the following licensing models:

- Demo – A free licence for demonstration or evaluation purposes
- Concurrent – A licence based on a specific number of concurrent users, with a cost that is either fixed, or which varies according to the number of users, or a combination of the two.
- Lease (Named Users) – Similar to a concurrent licence, but allows the licences to be allocated to specific individual users, who would always be guaranteed access.

- Pay Per Use – Application is billed on a per use basis, and may or may not have a fixed upper limit of users
- Unlimited – A fixed cost, but with no limit imposed on the number of users accessing the application

When an application is accessed via the portal, the license server authenticates this access against the details stored. Cost information is also held, so that a complete picture of license usage and charging can be built up.

User information is held within a directory, and specifies which applications that individual has access to. When the user loads 7M Aspire and logs on, the relevant applications are listed on a pull-down menu. The product has a flexible administrative structure that is based on roles, departments and workgroups. Roles would be entities such as a personal assistant, an engineer, a telesales executive or whatever suits the user organisation. Departments are typically set up to mirror the existing company structure, whilst workgroups provide support for more transient groups such as project teams.

Application access rights can be granted at any of these levels, as well as to named individuals. When the user logs on to the portal, the application profile server determines from a combination of the individual's role, department and workgroup profiles, exactly which applications should be made available. 7M Aspire also supports a domain based structure, whereby the administrative role for a particular domain can be delegated to one or more individuals. This is ideal for the large, widely-distributed organisation that needs user and application access management to be done at a business unit level, whilst retaining central control and monitoring of applications across the whole enterprise.

Butler Group believes that the modular way in which 7M Aspire is structured is a particular strength. Information on applications, licenses, and user profiles is clearly distinguished and stored, and the 7M Aspire Management Platform brings these details together to deliver secure, controlled access to the client. The product architecture is shown in the diagram below:

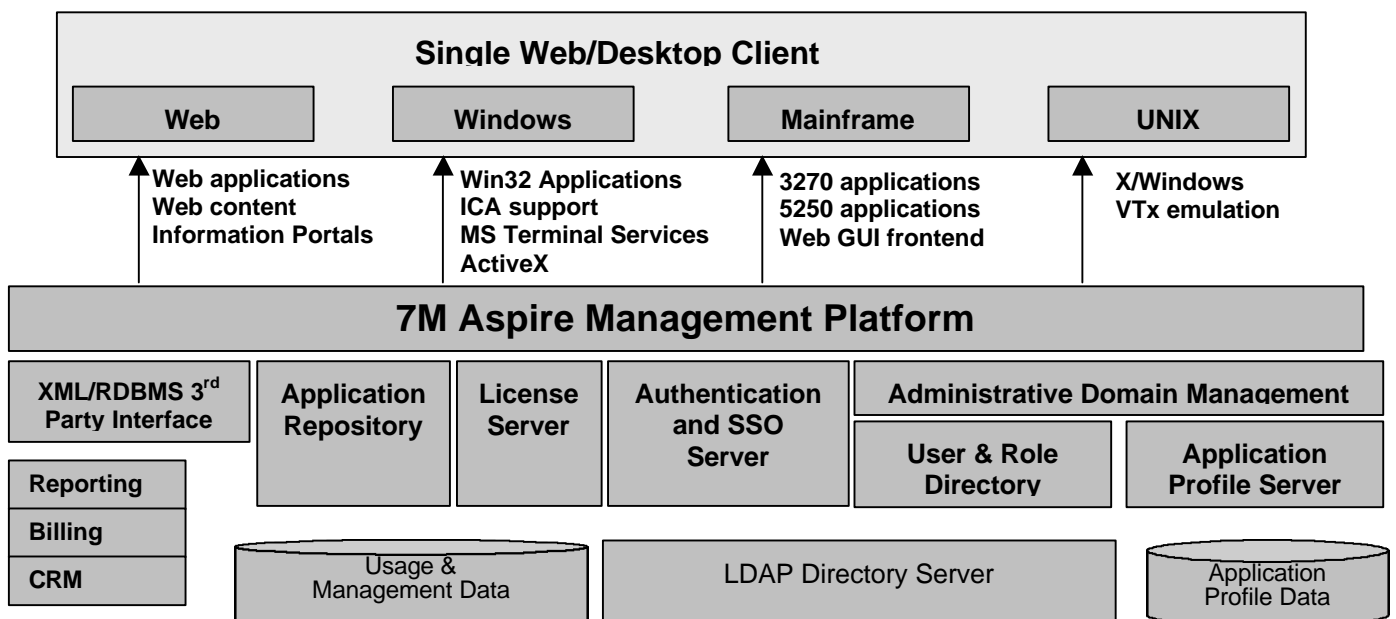


Figure 1: 7M Aspire Architecture

This clear structure is also the foundation of the usage and billing information that the product can provide. Details of application access are captured at all levels, including time, user name, licensing and cost information, which is then available for reporting. 7M Aspire can be used with any standard reporting tool such as Actuate or Crystal Reports. This level of detail enables an organisation to achieve complete control and management of its application usage and licensing, and Butler Group considers this to be essential for companies of all sizes. It is also useful from a security perspective, as it provides an audit trail of all application and Web resource access.

7M Aspire can be clustered across multiple servers, using Cisco Local Director for load-balancing between them. The company has recently carried out tests at IBM's ASP test centre at Hursley, which achieved 20,000 user logins within a ten minute period, and 36,000 application loads within the same timeframe, running on two IBM 4000 servers with dual Pentium III 750MHz processors and 2 Gb RAM. The same tests showed good linear scalability, with a 90% performance return on added CPUs.

The system has several fault-tolerance features, including the automatic restart of the server in case of hardware or operating system failure. All application sessions are persistent on the 7M Aspire server, so if communication is lost between the client and the server, the client will automatically try to reconnect, and can resume the application session using the stored session information.

The majority of the 7M Aspire functionality is included within the standard product offering. Optional modules include the SSO capability, and support for Citrix Metaframe. Customised reports or interfaces can also be developed as an optional extra.

PRODUCT EMPHASIS

The emphasis of 7M Aspire is on reducing the Total Cost of Ownership (TCO) of applications by providing a platform for centralised deployment, management and control, that has the infrastructure necessary to support a complex, widely distributed computing environment. Butler Group believes that these TCO benefits can be achieved by better license management (through checking usage and centralising demand), a reduction in desktop support requirements, increased application availability, and improved deployment times for new applications and new users.

Other application deployment products and other software asset management products are available, but SevenMountains offers a particularly strong combination of the two that encompasses all platforms, and is suitable for a large, complex organisation. 7M Aspire in effect adds an application management layer on top of a company's existing infrastructure, and there are cost implications of doing so. In a more homogenous environment, this cost may not be justified, but for a larger enterprise Butler Group believes that the product can offer a relatively quick Return on Investment (ROI).

DEPLOYMENT

Deployment of 7M Aspire is typically carried out by SevenMountains and its systems integration partners. In-house technical skills would be required for the central management role, and would include administrative experience of Java application servers, databases, directories, and thin-client

technologies. For a local administration role, specific technical skills are not necessary, and the only pre-requisite would be training on 7M Aspire itself.

SevenMountains encourages its customers to deploy the product in an incremental manner, perhaps starting with one application, or one particular business unit. The product is designed to utilise a company's existing infrastructure, and SevenMountains believes that this methodology makes it easier to integrate current systems, and also allows the customer to see a more rapid ROI. There are some instances where it may not be appropriate to deliver applications exclusively via the portal – for example for mobile workers, where Internet access may not always be available, and personal productivity applications are still required. Butler Group believes that this gives the flexibility of choice for combining server-based and local applications.

For most 7M Aspire projects, front-line support will be provided by the prime contractor, often a systems integrator or consultant. SevenMountains offers high-level technical support both to end-users and to its partners, and the company's technical consultants and developers participate actively in this process. Three levels of training are provided – Aspire Master Administrator dealing with top-level configuration, Aspire Domain Administrator covering non-technical administration, and end-user training giving an overview of the client environment.

7M Aspire is available for the Windows 2000 or Linux operating systems. It requires a J2EE compliant application server, and currently supports IBM WebSphere 4.0 or Silverstream 3.7. It also requires a relational database, either Oracle 8 or IBM DB2, and an LDAP-compliant directory. Because applications are delivered via a server-centric model, the customer may also need to include enabling technology such as Citrix Metaframe and Web-to-host emulation software.

Integration issues with this product include both the applications themselves and the underlying infrastructure. SevenMountains claims that the open architecture of 7M Aspire allows it to link to any application delivery mechanism, and this will include areas such as .NET applications and Web services. It is also possible to deliver Application Service Provider (ASP) hosted products through 7M Aspire's management layer – this has the benefit that it can monitor application usage from the customer side, to verify the ASP's own billing procedures. Finally, the product can itself be integrated as a component into an existing Enterprise Portal, adding advanced application deployment capabilities to the product.

Bandwidth requirements are an important consideration with this model of deployment – each application type that 7M Aspire delivers to the client uses its native protocol, so bandwidth usage is application specific. In general terms, the server-centric model increases the base bandwidth usage, because some traffic is always used to keep the application session alive. The peak usage however is typically reduced, since large amounts of application data are not being moved from server to client. This has the advantage that overall bandwidth usage is more consistent and easily predictable, and can be better planned.

The main area of risk associated with this type of product, is failure to seek user buy-in to the server-centric model. It is a different way of deploying applications, and users can feel that they have lost control of their own computing environment. This feeling can be mitigated by customising the portal front-end where possible, and by educating users during the implementation phase. Butler Group believes that improved application availability, reduced need for local support, and more flexible access are positive factors that help to win users over.

PRODUCT STRATEGY

SevenMountains' target market for 7M Aspire is large enterprises with a complex IT infrastructure. The company believes that organisations with over 1,000 employees will benefit most from its technology, and has identified healthcare, banking and finance, energy and utilities, and public sector organisations as markets on which it will initially focus. 7M Aspire is also well suited to the ASP market, since its domain structure and delegated administration capability allows a single provider to easily host applications for multiple clients.

SevenMountains is in the early stages of bringing its product to market. To date it has implemented systems for six customers, with others in the evaluation and pilot stages. The product is primarily sold direct, although its consultancy and systems integration partners carry out the bulk of the implementation work. The company also plans to license its technology to other software vendors in the future.

Technology partnerships have been established with IBM and Silverstream for their application server platforms, and also with Oracle, Sun and Citrix. SevenMountains sees other portal vendors as its main competitors, although Butler Group believes that application deployment is not a primary focus for most companies evaluating enterprise portal products.

7M Aspire is licensed on the basis of a charge for each server module, plus a per-user component. Because of the nature of its market, the company is flexible enough to tailor the license to the needs of individual clients.

In future releases, SevenMountains plans to enhance support for wireless and mobile clients, and to provide access to documents and files through the portal. The company will also add support for new application types, such as .NET based Web services.

Many organisations are embracing the concept of software as a service, either delivered by an external provider such as an ASP, or by an internal department, where software usage can optionally be recharged to other business units. Butler Group believes that this model will continue to grow, and will be given additional impetus by Web services technologies such as Microsoft .NET and Sun Open Network Environment (Sun ONE).

COMPANY PROFILE

SevenMountains was founded in Norway in 1997, and was spun off from the R&D division of Swedish Nocom – a distributor of connectivity and integration software, including Netscape servers. The 7M Aspire product was developed during 2000/2001, and the company attracted \$18.5 million in funding from 3i and from several Scandinavian investors. The company's headquarters are in Oslo, Norway, and it also has offices in Bergen, Norway.

SUMMARY

Application deployment via a thin-client model is not of course a new idea, and the market still suffers from the perception of the “network computer” as a concept that never quite reached fruition. However, the technology landscape has changed, and the rise of the application server, and the ability to deliver a much wider range of applications, offers a platform that is sufficiently robust and scalable to support centralised application deployment in a large and complex enterprise.

Most importantly, this model meets the requirement for application access from any location and from any device. In 7M Aspire, SevenMountains has created a technically strong product that is well focused on the business issues that surround application deployment. Butler Group believes that by improved license management, reduced desktop support and maintenance, and quicker deployment timescales, 7M Aspire can provide a Return on Investment for the majority of companies with a diverse IT infrastructure supporting a distributed client population.

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