



## Provato – Mobile Application Development Building Block

**Building Value Added Services that use mobile messaging technology presents some unique challenges for the software development team within mobile networks operators. Applications need to interface with multiple message services using different protocols and configurations. The configuration of the application will change between development and production, but also while in production. The application needs to be robust enough to handle communication failures and configuration changes at runtime.**

Provato (previously Vivato) meets these challenges by providing a configurable, manageable service that handles the task of mobile messaging on behalf of your Value Added Service application. Provato integrates closely with J2EE application servers such as BEA WebLogic and JBoss to provide easy access to messaging functionality for Enterprise Java Development. The use of JMS with Provato in a J2EE environment provides a powerful bridge between mobile messaging and enterprise software development. Provato can also be deployed as a server and accessed by software from a range of programming environments using a Web-Services interface. The flexibility and power of Provato allow the software development to concentrate on creating and delivering in-house Value Added Services quickly and reliably.

### Key Benefits

- ▶ **Better return on investment from your applications** because you can enhance your applications and services and deploy them quickly with Provato
- ▶ **A reliable platform for growth** - You get a robust, scalable and flexible enterprise solution that caters for growth in service usage. Provato can run on a single machine or distributed across multiple machines
- ▶ **Content Focused, Future proofed** - You can rest assured knowing that your applications are ready for new messaging technology
- ▶ **Zero learning curve** – because Provato uses existing document standards similar to HTML, there is no learning curve required for you and your team to create and send complex mobile messages
- ▶ **Any language, any platform** - You can deploy reliable mobile message applications quickly from any development language on a range of platforms including Windows and Unix environments
- ▶ **No application downtime** - You can manage connections to mobile network servers, gateways, devices and third party service providers reliably configuring alternate message routes in the event of network failure. Your Provato configuration can be changed dynamically at runtime needing no applications restart.
- ▶ **A shared resource** - You can share Provato with a host of concurrent applications and across the local network (LAN)
- ▶ **Easy to use** because the console is user friendly, its design is simple and it can be accessed remotely with an internet browser
- ▶ **Technology roadmap offered with Provato** includes innovative group message transactions and S-WAP messages - a new and proprietary messaging concept from NCL

#### Messages types supported

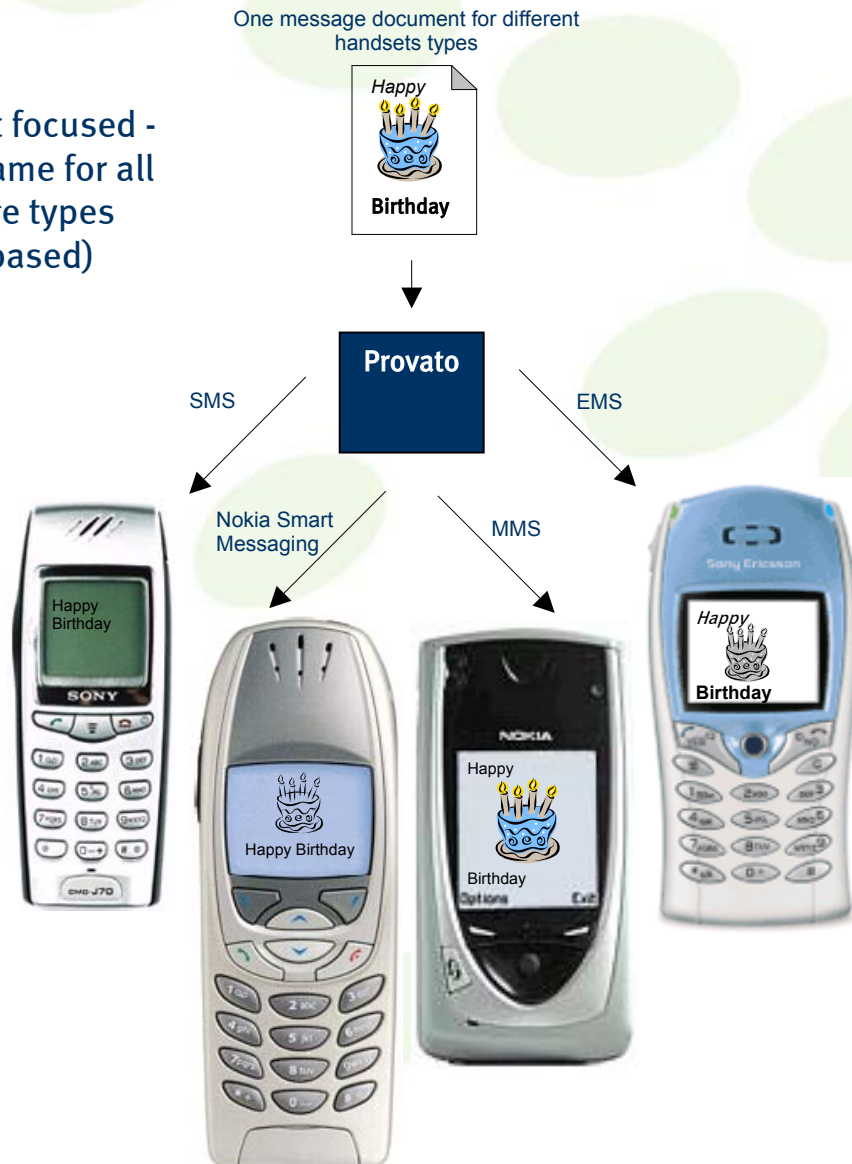
- ✓ **SMS** – text and UNICODE
- ✓ **MMS** - Multimedia
- ✓ **EMS** - Enhanced messaging
- ✓ **WAP Push 1.2.1** messaging - used to make mobile internet and service navigation user friendly
- ✓ **Long Messages** - use multiple SMS to deliver messages longer than 160 letters
- ✓ **Smart Messages** – Nokia ring tones, logos and picture messages
- ✓ **Delivery Receipts** - routed to the relevant source application



## Content Focused, Future Proofed and no learning curve

Applications supply messages to Provato in content form - a document structure similar to the web document language HTML. It is this document structure that is used for all messaging types. The advantages are many. A text (SMS) application developed using this technology is EMS/MMS ready. Adding objects like pictures and sounds means just modifying the document with no change to your application. The technology learning curve is minimal as most application developers already know HTML, so your applications get to market quickly.

Content focused -  
Input same for all  
message types  
(HTML based)





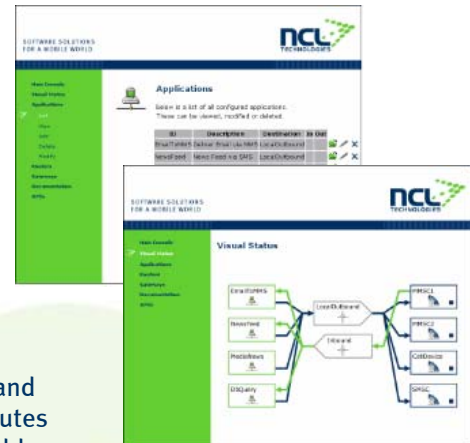
## Simple design, easy to use

Provato takes on a simple design, so it is easy to manage. Within Provato here are three concepts – Applications, Routers, and Gateways - and visual representations of message routes are presented on the user interface.

**Applications** connect to the Provato Server via one of the Provato application interfaces (APIs). Each application has dedicated inbound and outbound message queue. Messages are stored so no messages are lost even if your application goes down.

**Routers** are used to route messages between applications and gateways. Routing is based on a selection of message attributes such as keywords in the message, source and destination address, type of message (MMS, SMS) etc. all configurable. The routing criteria are configurable. This is important when there is a number of mobile network operator connections, and connections with different tariffs (e.g. premium rates numbers).

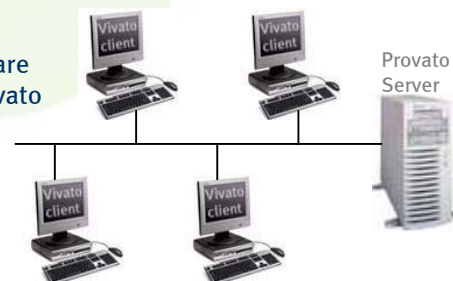
**Gateways** do the real low-level message work. These are connections with devices and mobile operators that hid all the protocol complexities from the user. Provato Gateways can interface with mobile message networks over number of operator-, service provider- and device-independent protocols.



## Shared resource, routing is easy

Provato can be used concurrently by multiple applications. Sharing mobile network resources between a number of client applications has never been easier. Message routing is easy to setup. Multiple clients, applications, content providers and other information sources can all share the same resources (such as limited SMSC /MMSC connections as premium numbers/short-codes) with Provato acting as a gateway to those resources.

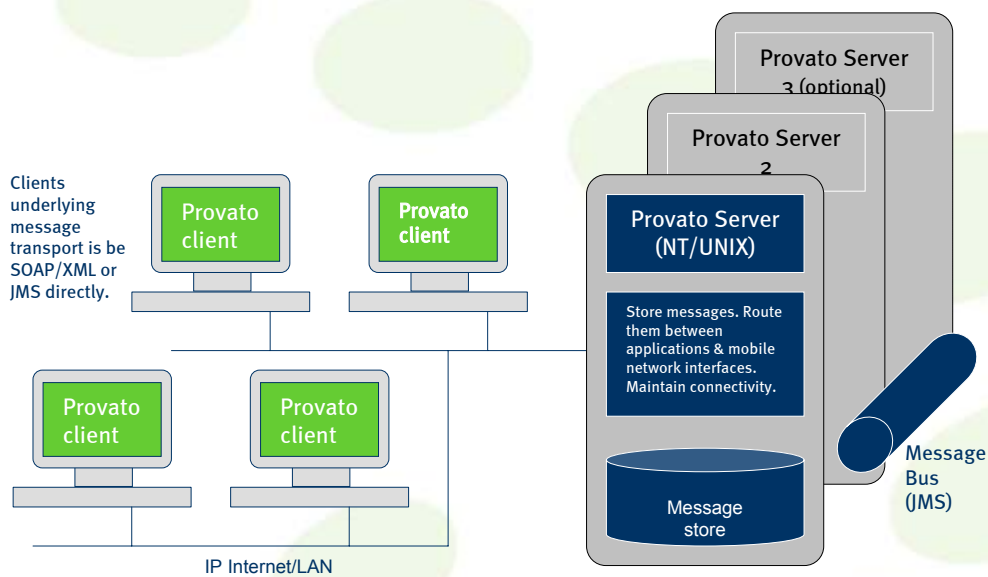
Delivery reports from Provato and external gateways are routed back to the original message application. Provato uses internal message IDs that are unique throughout all applications, so messages and their corresponding delivery reports can be matched in each application.





## Reliability

With Provato application downtime is minimised. By acting as a buffer between applications and mobile networks nodes, controlling the flow of messages and maintaining network connections Provato adds reliability and robustness to your applications. Provato re-establishes connections dropped by external devices, gateways and message centres. Your applications will continue to work without disruption.



## Scalability

Provato is built on JMS or Java Message Service. JMS – is a software message bus that can be distributed across a number of machines or servers. So as your application usage grows, so can Provato.

Your service level agreement (SLA) costs are scalable with different application server providers from JBOSS to IBM. This gives you the opportunity to migrate from low cost solutions to high-end servers, and achieve a carrier-grade level of service.

### Application Servers

Built on JMS message bus technology, Provato will run on a number of application server environments including:-

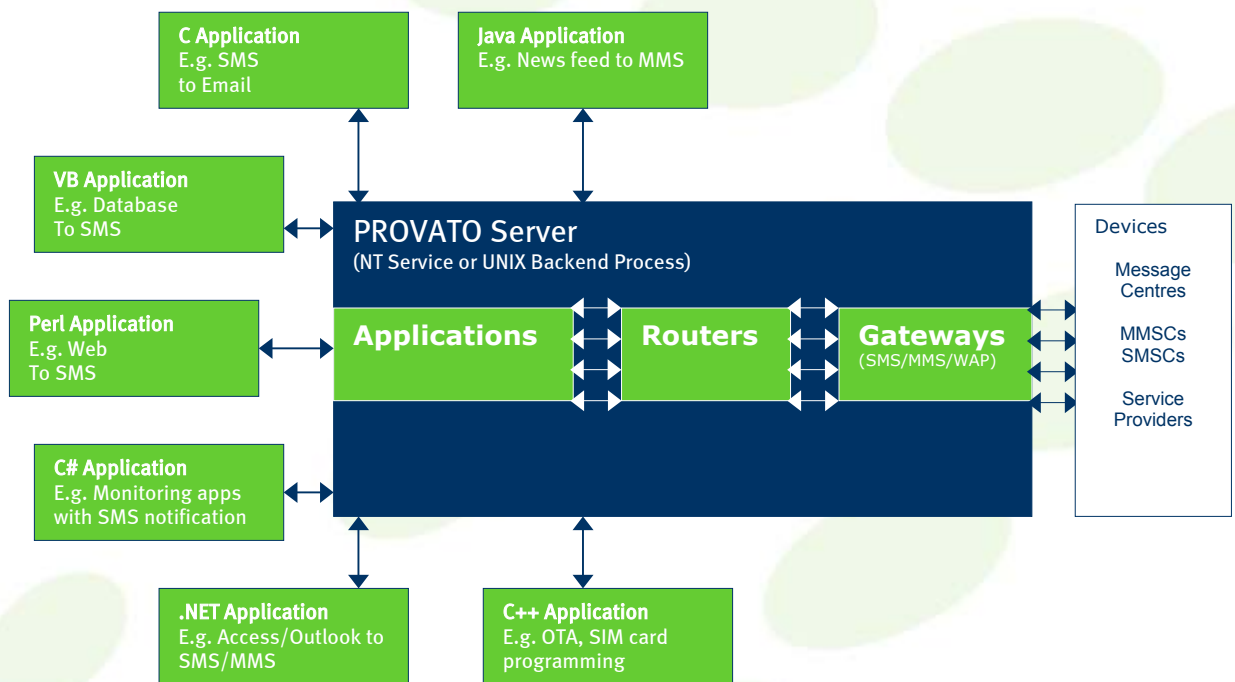
- WebSphere from IBM
- WebLogic from BEA
- AIS server from Oracle
- Jboss (shipped with Provato)



## SOAP/XML interface - Any language, any platform

Provato supports .NET, Visual Basic, C sharp, COM, Java, C, C++ and PERL. So whatever your development requirements, Provato will work. How does it do this? Provato interfaces are built on SOAP/XML. This standard is a trusted and accepted standard in all development communities and supported by Microsoft, SUN, IBM and a host of other platform vendors.

Provato is built on JMS technology (Java Message Service). So the Provato server can be deployed on any platform Windows NT/2000, Linux, Sun, IBM, HP offering a very flexible solution.





## Technical Features

- ▶ Support for various mobile messaging protocols including SMPP 3.3 and 3.4, CIMD 2.0, UCP, MM7 and cellular devices
- ▶ Bind sharing across multiple applications
- ▶ Bind management disconnect notification and automatic reconnect
- ▶ Message routing filtering based on originator and destination numbers, keywords, user agent, etc
- ▶ Message persistence and logging
- ▶ Range of message types including SMS, MMS, EMS, Nokia Smart Messaging, Ringtones and operator logos
- ▶ Delivery Receipt routing - to originating application
- ▶ WAP push and WAP bookmark messages
- ▶ Range of development environments including Java, C#, .NET, SOAP etc
- ▶ Support for JMX component management
- ▶ Bind abstraction enables binds to be connected and reconnected independently from applications (buffer between application & message centres)
- ▶ JMS technology enables clustering of message bus across a number of servers
- ▶ Browser based GUI administration console with diagrammatic view of routing.
- ▶ SNMP for process & throughput monitoring
- ▶ Full Cluster support
- ▶ Full Number Portability (routing messages based on originating gateway)

### Roadmap features

- ▶ Batch Job Management
- ▶ User Agent (handset type) tracking
- ▶ User Agent based SMIL transformation (different SMIL encodings for different MMS handsets)
- ▶ Additional Interfaces (RMI/SMTP/SMPP)

## So what next for Provato?

Provato has a product road-map that is innovative yet business focused. With our new proprietary S-WAP messages on the horizon (WAP messaging using SMS notification) and group message transactions, NCL's Provato delivers leading edge technologies that saves time and increases revenue.

Furthermore, new application interfaces for Provato are under development including Email and SMPP access. Easy integration of Provato with existing infrastructures is of considerable importance to NCL.

## About NCL

NCL Technologies is the unrivalled supplier of mobile application development building blocks and middleware components for mobile network operators, wireless application developers, ISVs and SIs. Founded in 1998, NCL is an Irish based software company. NCL's superior J2EE solutions empower our customers to create and deploy messaging applications quickly and reliably within JBoss, BEA and WebSphere. Built on open and industry standards, NCL's solutions integrate with all mobile networks worldwide.

*NCL Technologies looks forward to working with you.*