Opera Widgets
Cross platform applications
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Opera Software ASA

Established in 1994

- listed on the Oslo Stock Exchange

Nine offices

- HQ in Oslo, Norway
- 530 employees

- 150+ million downloads of the Desktop browser
- 100+ million Opera Mobile browser installations shipped on 150+ mobile and device models
- 15.8 million unique monthly users of Opera Mini in July 2008
- 700,000+ development hours, 1+ million testing hours to date
Opera products

Opera’s vision is to provide the best Internet experience on any device.

Full browser client on any device

Opera Mini – Client/server

Widgets & Web applications platform

Community and Web services

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2 Opera Widgets Introduction

- Create first-class Web applications
- Accelerate time to market
- Differentiate marketing offerings
- Benefit from open Web 2.0 APIs
An easy way to create Web applications

- Widgets are dynamic Web applications that are connected to the Internet but act like native code applications.

- Opera Widgets use Web techniques to render content and provide interaction like HTML, CSS, Javascript, Ajax. Opera Widgets are aligned with the W3C spec for widgets, based on original Opera Widgets specifications.

http://www.opera.com/docs/specs/
A widget is more than a webpage

Unlike a webpage, you do not have to open the Web browser to access Web content from a widget. This is especially useful on a small mobile device.

While a webpage can only read data from the server it was loaded from, widgets can connect to a specified set of servers listed in the widget configuration file.
Security is important for widgets

- Each widget has a private HTTP Cookie store and a private document cache, apart from regular Web pages.
- Cookies and cached documents are not shared with other widgets or with the browser.
- The security model ensures that a widget can't access privileged information after you log into a Web site with the browser or through another widget.
Widgets can support different modes

**STATIC:**
- **Icon mode**
  - The widget is represented by a static icon. User has to click the widget to access content

**DOCKED (Micro):**
- **Dynamic icon mode and Minimized Mode Widget**
  - The widget outputs information but the user cannot interact with it. Icon is updated on notification or by polling at regular intervals. Micro or docked mode widgets can be any size

**FULL SCREEN:**
- **Full Screen Mode**
  - To interact with the widget, the widget is full screen
Due to the platform independent architecture of the Opera Widget implementation, Web developers can design their widget for different screen sizes and CPU/memory configurations using common Web technologies and design rules.

Benefits include:

- Reuse of code
- Shorter development time
- Less risk, higher quality
- Increases the user base
- Simpler development

TV/Set-top boxes  Mobile phones  Portable media  PC: Windows, Mac, Linux
Opera Widgets can communicate

Three play strategy with Opera Widgets. They can be used for:

- Active UI management
- Network calendar
- Group lists
- Syncing between devices
- Media exchange
- Personalized services
- Location based services
- Identity
Example of a mashup widget

- A mashup combines multiple Web-services to convey power applications.
- Declarative security model: the widget can execute scripts from multiple hosts.
- Widgets can be signed, hence a trust model can be implemented.
- Each widget has its own application preferences: meta-data.
- Open standards based Web Application: (X)HTML, CSS, JS, DOM and Browser Plugins.
Examples of a single purpose widgets

- Tailor key functionality embracing a single purpose service
- Reduced bandwidth requirements
- Meet user expectations
- Instant access to information
- Self-sustained application that updates itself, through polling
3 Opera Widgets ecosystem
A complete widget ecosystem

1. **Opera Widgets SDK**
   - **Current Features**: Developers get tools to develop widgets including debugging. Developers can upload widgets, get widget approval status, downloads, other data.
   - **Under consideration**: Partner program and micro payment from advertising. 
   - **Website**: [http://dev.opera.com](http://dev.opera.com)

2. **Administration tools**
   - **Current Features**: Administrator QA's the widget, communicates widget status to develop and uploads widget to End user widget Website. 
   - **Planned features**: Upgrade system to new spec for better QA, dynamic mechanism for updating and revoking widgets.

3. **End-user Website**
   - **Current features**: A Website on mobile phone, PC or device (adapted for the relevant device) that shows widgets available for that device. 
   - **Planned features**: Show promotion widgets on top and better user interaction. 
   - **Website**: [http://widgets.opera.com](http://widgets.opera.com)

4. **Widget manager client**
   - **Current Features**: A widget manager is host application on a phone or device where widgets are stored. 
   - **Customer specific features**: Micro Widget support and showing partner widgets on the standard idlescreen of the handset that is dynamically controlled by the Operator using administration tools.

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Opera Widgets SDK

- Opera Widgets SDK contains tools for developers
- Widget emulator and Device API simulation
- On device debugging using Opera Dragonfly, which includes:
  - JavaScript debugger
  - CSS and DOM inspector
  - XHR/HTTP logger/debugger

The SDK is available here: http://dev.opera.com
Administration tools

- Enables the operator’s development community and partners to certify and sign widgets
- Allows processes for widget polling, notification, updates, revocation etc
- Supports the operator’s Q&A process and is based on collaboration
End-user widget website

- Custom widget websites for desktop, devices and mobile phones
- Custom widget content for operator widget library and public widget library

Public
- All Opera users

Dedicated
- Customer subscribers/users only

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Opera widgets manager

- The Widget Manager client can be interested with the idlescreen of the device to create an active idlescreen solution.
- Opera offers the **Opera Widgets Integration SDK (OEM)** to integrate with widget functionality within the idlescreen. This includes:
  - Widget runtime (binary variant)
  - OEM developer documentation
  - Reference implementation
4 Opera Widgets active idlescreen solution
Generic, custom or SDK solution

For End Users  FREE FOR DOWNLOAD

Available on:
Opera 9.5 on desktop (Win, Mac, Linux)
Coming soon in Q4 08!
Opera 9.5 on S60 phones
Opera 9.5 on UIQ phones
Opera 9.5 public beta on WM PPC

Current features:
• Users can get access to widgets from the widget manager on their phone
• Over 1000 widgets on widgets.opera.com
• Upcoming features:
  Advanced widgets with Mobile DOM
  Support for Micro Widgets
  Remote management of widgets by user from the PC to the phone
  Selection of partner widgets

For Telecom Operators and OEM’s  CUSTOMIZED SOLUTIONS

Available on:
Opera 9.5 on S60 phones
Opera 9.5 on UIQ phones
Opera 9.5 WM PPC
Coming soon in Q1 2009
Opera 9.5 BREW

Current features:
Customers get access to additional API’s to:
• Show widgets on phone idlescreen
• Integrate widgets with native apps such as camera, GPS, Contacts using Mobile DOM
• Complete UI customization
• Choice of integrating with Opera’s widget ecosystem or customer’s existing widget repository

For Device Manufacturers  DEVICES/Widgets SDK

Available on:
Linux (available on Nintendo Wii and Archos)
Win CE
BREW

Current features:
• Devices SDK can be used to build Widget Manager and device applications can be written as widgets by device manufacturers
• Like any other window in the Opera SDK, Opera widgets can be moved around, shown (with transparency), hidden

Generic Solution

Custom Solution

Opera Devices SDK
Customied active idle screen solution

- Embedded widgets on the home screen
- Zero click distance to services
- Single purpose applications
- Instant notifications to the user
- Simplified distribution through widget repository
Customer experience becomes easy

- Zero click distance to content
- Content is updated dynamically
- Complete integration between native and Web applications for a seamless experience is necessary
## Custom Mobile DOM Extensions

<table>
<thead>
<tr>
<th>API</th>
<th>Features</th>
</tr>
</thead>
</table>
| Calendar/ToDo     | • Add, remove and list calendar events  
                      • Add, remove and list todo items                                      |
| Contacts          | • Contact list management that includes add, remove, update and list contact |
| Messaging         | • Send a text message, e.g. SMS or e-mail                                 |
| GPS               | • Resolve longitude and latitude  
                      • Monitor GPS device status                                              |
| System Network    | • Monitor and check status of network interfaces  
                      • Check system status, e.g. battery, radio signal  
                      • Make phone call                                                          |
| Application launcher | • Launch native device applications                                    |
5 Opera Widgets customer deployments
Direct to customer relationship

Total widgets downloaded Q4 07 and Q1 08: 6.2 Million widget downloads

Total library of widgets is 2000 widgets,
Total number of visitors to widgets.opera.com is 5,198 million
Each widget downloaded 3000 times (approximate) In reality 3 to 4 widgets like the Sim Aquarium, touch the sky, analog clock contribute to 80% of all downloads
Each user downloaded 1.2 widgets on average (approximate)

Archos A605 82,194
Opera 9.0x - 9.4x 5,346,578
Opera 9.5x 336,502
Unknown PC browser 229,611
Wii Version 2 51,771
KDDI Not public
"Our partnership with Opera helps turn ARCHOS portable media players into the most advanced and compelling wireless devices available today," says Henri Crohas, CEO, ARCHOS.

"Opera proved perfect for our purposes and is an exceptional addition to both the Nintendo DS and the Wii console," said Genyo Takeda, senior managing director and general manager, Integrated Research & Development Division, Nintendo Co., Ltd.

"We are confident that au one Gadget will be a key application for our mobile phones," says Takashi Nagashima, General Manager, Consumer Service & Product Planning Division, KDDI.
Telenor, Orange, Vodafone

Opera Platform 1.0
Telenor R&D

R&D project
Orange/FTR&D

Vodafone R&D project

Opera Internal R&D project

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6 Competitive overview
7 Roadmap and resources
Widget roadmap and resources

- **WCL developer guide** by Opera Software
- **Opera Widgets Specification 1.0 third edition** by Opera Software
- **Opera Widgets Preference Store** by Opera Software
- **Opera Widgets and Ajax: connecting to multiple servers** by Opera Software
- **Cross device development techniques for widgets** by Opera Software
- **Characteristics of widgets on mobile phones** by Opera Software
- **Widget modes: docked, widget and more** by Opera Software
- **Creating your first Opera widget** by Opera Software
- **Opera Widgets Specification 1.0** by Opera Software
- **Opera Widgets Style Guide** by Opera Software
- **Packing and deploying your Opera Widget** by Opera Software
- **Widget Emulator** by Opera Software
- **Opera Widgets SDK** by Opera Software
- **Mobile widget development process advice** by Opera Software
- **Opera Widget support notes** by Opera Software
- **Adding a docked mode to your widgets** by Opera Software
- **Opera Widgets security model** by Opera Software
- **Opera Widgets: cross platform applications** by Opera Software
- **Opera competition - design a widget and win a Wii with Guitar Hero III** by Chris Mills
- **Opera Widgets Resources** by Opera Software
- **Hello Animation!** by Opera Software
- **Give your widgets a voice** by Ola Peter Kleiven

All Widget related information for developers is available at: http://dev.opera.com

All End-user widgets for download are available at: http://widgets.opera.com
8 Opera technology
Opera Widgets are based on Opera 9.5

Opera Widgets comprise of the following technology components:

- **Open web standards browsing technologies**
  - HTML 4+, CSS 2.1+, JavaScript 3rd edition, Browser plugins; e.g. Media Player, Flash

- **JavaScript Extension Framework**
  - The JavaScript Sandbox can be extended by writing native modules

- **Mobile DOM 1.0 revised**
  - Implemented using the JavaScript Extension Framework and provides native integration with Text Messaging, ToDo List, Calendar, GPS etc

- **Backend services**
  - Inquire service points for centralized communication policy management
  - Widget Repository
**Opera Mobile 9.5 – Core**

2.1 standards support

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Detailed specifications with stated exceptions available here in HTML and PDF format:
http://www.opera.com/docs/specs/

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<table>
<thead>
<tr>
<th>Documents support</th>
<th>Web applications support</th>
</tr>
</thead>
<tbody>
<tr>
<td>• HTML 4.01</td>
<td>• Opera Widgets</td>
</tr>
<tr>
<td>• XHTML 1.0/1.1</td>
<td>• W3C Widgets 1.0 (draft)</td>
</tr>
<tr>
<td>• XML, XSLT, XPath</td>
<td>• XMLHttpRequest – XHR (“Ajax”)</td>
</tr>
<tr>
<td>• CSS 2.1</td>
<td>• ECMA-262 2nd &amp; 3rd edition</td>
</tr>
<tr>
<td>• CSS-MP 1.0 &amp; 2.0 (draft)</td>
<td>• JavaScript 1.2-1.5</td>
</tr>
<tr>
<td>• HTML 5* (draft)</td>
<td>• DOM 2 &amp; 3* (draft)</td>
</tr>
</tbody>
</table>

Draft: The standard is a work in progress in the W3C
* Partial support
**Opera Mobile 9.5 – Core 2.1 standards support**

Detailed specifications with stated exceptions available here in HTML and PDF format:
http://www.opera.com/docs/specs/

<table>
<thead>
<tr>
<th>Networking support</th>
<th>Graphics support</th>
<th>OMA and mobile</th>
</tr>
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<tbody>
<tr>
<td>HTTP 1.0/1.1, including:</td>
<td>SVG Tiny 1.2</td>
<td>WAP 2.0 (W-HTTP)**</td>
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<tr>
<td>HTTP Authentication</td>
<td>Canvas (draft)</td>
<td>OMA Browsing</td>
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<tr>
<td>Resume download</td>
<td>Image decoders</td>
<td>XHTML MP 1.2</td>
</tr>
<tr>
<td>Proxy</td>
<td>- PGN/APNG, GIF89a, JPEG, BMP, WBMP, ICO</td>
<td>WML 1.3 &amp; 2.0</td>
</tr>
<tr>
<td>HTTP file upload</td>
<td></td>
<td>WAP CSS 1.1</td>
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<tr>
<td>SSL 3.0/TLS 1.0</td>
<td></td>
<td>WAP CSS 1.1</td>
</tr>
<tr>
<td>128 and 256 bit encryption</td>
<td></td>
<td>ECMAScript MP 1.0</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>OMA Operator cache</td>
</tr>
<tr>
<td>Unicode, legacy encodings</td>
<td><strong>Wap-stack not included</strong></td>
<td></td>
</tr>
<tr>
<td>Bi-directional text</td>
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</tbody>
</table>
Opera and operator support

Opera works closely with the following operators:

- Vodafone
- T-Mobile & T-Mobile US
- KDDI
- Orange
- Hutchison / 3
- Telefónica / O2
- China Mobile
- China Unicom
- Verizon
- Sprint
- Telenor Mobile

Opera monitors compliance with:

- Vodafone R5-R12
- Orange OGDR 4.0, 4.1 and 5.0
- Softbank requirements
- Sprint Web requirement
- Verizon browser requirements

“Opera Mobile is a leading, state-of-the-art mobile browser that meets and exceeds the high demands of KDDI and its subscribers, and therefore the natural choice to power our mobile Web offering.”

- Masahiro Inoue, senior vice president, “au” Service & Product Planning Division, KDDI

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Custom integration points

- Flash Lite Integration
  - License Flash Lite 3 from Opera or Adobe
  - Flash browser plug-in integration by Opera, third-party or Adobe

- DRM integration
  - OMA 1 and OMA 2 DRM integration

- Media player integration
  - Inline video/audio playback as plug-in

- Hardware acceleration
  - Optimize UI and browser performance with GPU and OpenGL ES

Opera has extensive experience with embedded software.

Integration through
• plug-in architecture
• custom APIs
• JavaScript Extensions
Thank you.
Q & A