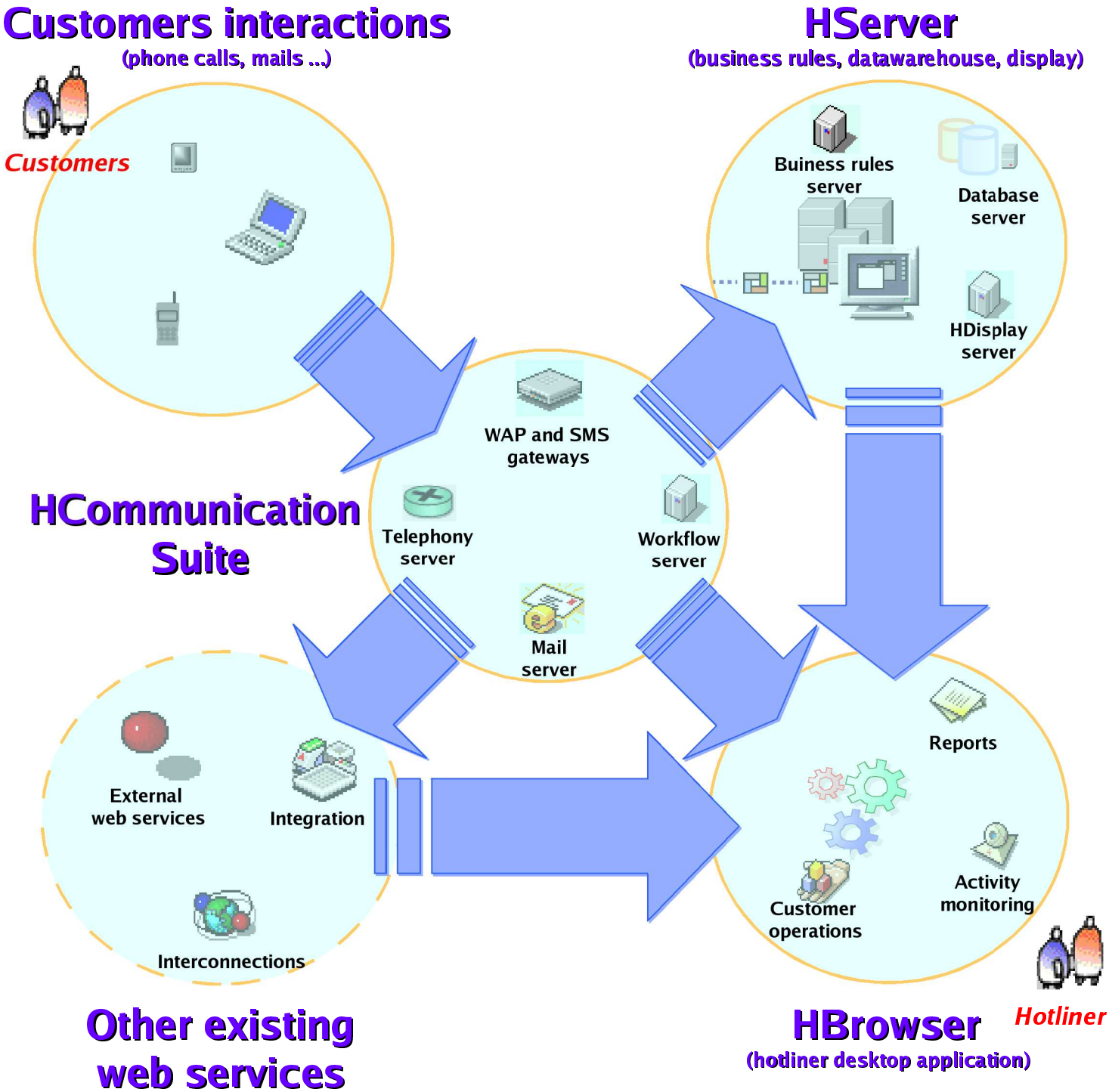
Architecture white paper

HEnterprise suite

When the technology matters

A new edge for middleware solutions
An open customer centered middleware
An easy way to build your information system



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Modules description

HServer

The display manager for HBrowser clients
HServer also stores all display pages used by HBrowser.
HBrowser downloads pages at each new version of the application and then store them in a local cache.

The business rules server
Users do not connect directly on databases but on a business rules server that grants data accesses and rules defined through scripts.

The database backend
HServer is a web services server that beahves has a front end between HBrowser and database.
HServer runs all business rules and manage users access rights for web services.

HCommunication suite

HEnterprise suite includes a serie of specific HServers implementations : HCTI, HVoIP, HMail, HSMS and HWorkFlow. They deals with all incoming communication streams generated by or to customers.

HBrowser

A smart browser that reduces server load and coding
The browser does not need recompilation for a new application : it downloads « display forms » from a file/web server and store them in cache each time a new version is published.
At runtime, the browser request web service i.e. the minimum set of data needed : its side effects are network and server loads reduction and a code reduction at server level (no code is written for displaying data which significantly improves server uptime.

A simple integration of several existing web services without modifying or recoding servers
For a single user screen, the browser can request data from different servers and store them locally. This means that you do not necessarily need to integrate services at a server level : this greatly simplifies integration of beast of breads servers

An open infrastructure
Choosing HEnterprise does not mean to be bound with it : you can select components you like and implement other web services from the market

Development tools description

HServer library

HServer library is a library to easily and simply code your web services.
This library can be used either in a compiled application to improve performance or in a scripting one in order to improve development time.

HReports

HReports let you edit reports on components of your data model.

HDesigner

HDesigner is a form design tool and a data model tool. They are of great use to design an application.

HDebugger

HDebugger is a debugger that can be activiated inside HBrowser.
It supports breakpoints on all events of HBrowser and data watching.
When HDebugger is activated, HBrowser automatically reloads pages from the server so that you can dynamically test your application without relooding or compiling any stuff.

More information on the web : http://hcisoftware.free.fr

HBrowser requirements
- A PC with Windows, Mac or Unix/X11, 128 MB of memory.
- An IP connection

HServer requirements
- A relational database server
- A web server
- An IP network

Documents to read
- HCommunication datasheet
- HTools datasheet
- Voice integration with HEnterprise
- Architecture white paper
- Performance gains compared to Java and web applications

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Contacts
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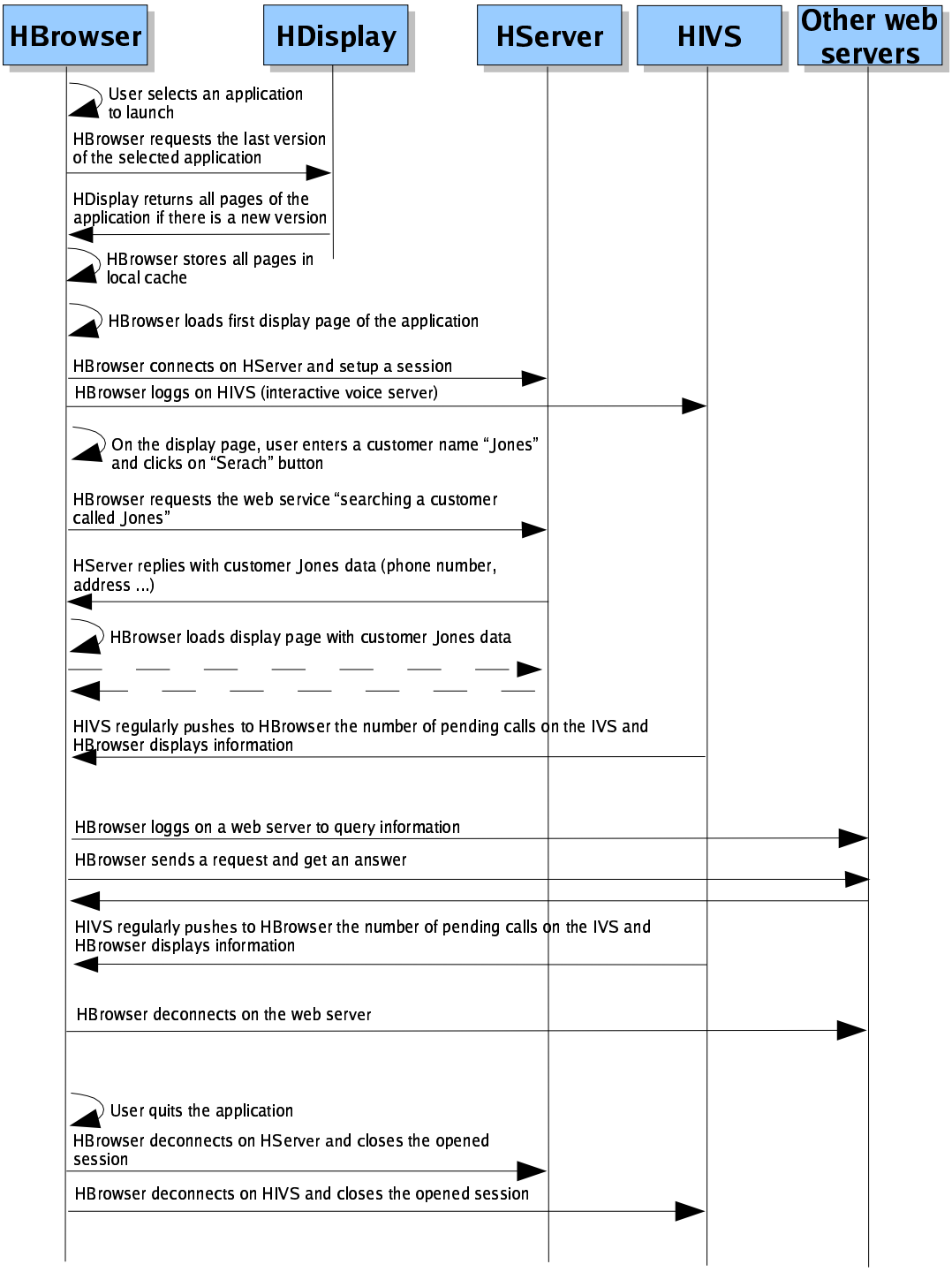
Example of data flows between modules



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Architectures and technologies benchmark

	Web 3 tier	Java	HEnterprise
Performance			
Server load In web and Java architectures with a web browser client, servers generate HTML pages containing business data. At each user interaction, servers generate a page. Moreover, Java is a quiete slow technology. A contrario, in HEnterprise technology, HBrowser client does not ask to business rules servers to generate full HTML pages but only relevant business data. HBrowser manages complex user interactions without always requesting a new page. The ratio of data transferred is very often between a one per four and one per ten.	-	--	++
Load of encrypting data at server side When data security is needed, web and Java servers encrypts display and business data. HEntreprise servers only encrypts business data which significantly reduces the job.	-	-	++
Robustness of the server In HEnterprise, by reducing code to strict minimum (business rules), bugs are scarers at server level which improves uptime of servers.	++	++	++
Robustness of database accesses Both Web, Java and HEnterprise have the same strategy to attack relational databases through business rules. Performance gains at this level are the same : they are good.	++	++	++
Scalability and portability			
Scalability Both Web, Java and HEnterprise can be run on scalable hardware and software platforms of the market.	++	++	++
Portability There are web browser for any platforms espacially for MAC and Windows desktops. HBrowser is using portable user interface libraries and can be run on MAC, Windows and Linux desktops.	++	++	++
User experience			
Both Web, Java and HEnterprise reloads an HTML page at each user interaction. HBrowser is able to keep data contexts and has smart editing widgets : you do not need to reload a page each time. You benefit from server-client user interface performance that does no longer exists on web browsing.	--	--	++
Development costs			
User interface development In Java architecture, user interface is oftently coded in server side. For a same service, but for a different display, you need to recode. In HEnterprise, display is dissociated from business services : a same web service can be displayed differently. You just need to edit the page (an XML file). Nothing is hardcoded, it can be managed by a webmaster.	--	--	++
Integration of new existing web services In Web and Java architecture, web browser does not let you have a data context (data living longer than the displayed page) neither several connections to several servers on a same page. So, you need to develop components (pieces of code embedded in an HTML page). HBrowser natively supports data context and connections to a set of web servers. You do not need to code components.	--	--	++
Urbanisation of the information system and reusing components In Web and Java architecture, servers mix business code and display code. So business services are rarely accessible and are recoded. HEnterprise relies only on web services i.e. on invariant data. You can concentrate on urbanisation of your information system. Moverover, by integrating services at HBrowser level, you can split your information system in main modules running on different servers. HBrowser is able to integrate data at its level, which suppress a new race of servers, “integration” servers.	--	--	++
Maintenance For web and Java architectures, it mainly depends on the platform used and on the power of released libraries. HServer libraries greatly reduce your code and so its maintenance.	-	-	+

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A solution using open and robust technologies ...

An open multi-user database

Maximizing the power of your database
You can use any database of the market (Oracle, SQLServer, MySQL).

Open and scalable
The performance of the server mainly relies on the architecture chosen for the database. You can support million of customer records in your database.

Cooperative transactions
Users can simultaneously make transactions.

Easy data model design
HDesigner let you easily create your own data model. This is also a very powerful tool to migrate data from a version to an other version of the data model.

Editable reports
HReport is a powerful design to tool to edit reports from the data model. Those reports are accessible through Hbrowser.

Standard web technologies reachable through existing networks (intranets and extranets)

An application available within all intranets and extranets
HEnterprise suite natively supports IP and web technology advantages : you can configure your network topology as wanted. There is no specific requirements for using HEntreprise suite on an IP network.

Users data secured with SSL encryption and VPN networks
Data are secured with SSL encryption (40, 128 or 256 bits keys). HEnterprise can also be run above VPN networks.

Open, robust and scalable infrastructure
HEnterprise suite server side can be run on main platforms of the market : Apache, WebSphere or IIS. They are robust and scalable.

... with a brand new open architecture based on web services

An open 3 tier architecture boosted by a powerful browser

A smart browser that reduces server load and coding
The browser does not need recompilation for a new application : it downloads « display forms » from a file/web server and store them in cache each time a new version is published.
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An open infrastructure
Choosing HEnterprise does not mean to be bound with it : you can select components you like and implement other web services from the market

A complete suite of powerful RAD tools to build an open information system

HReports
It let you design you activity reports without having a decisional report system. It performs “on demand” queries.

HDesigner
HDesigner helps you to concieve the application and the data model which lies behind.
It also helps you to migrate data when you make change on the data model.

HDebugger
This is an HBrowser powerful debugger with breakpoints management and data watching.

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