



Web Applications, Desktop Applications, and mSupply

Definitions:

- Web application: A software program where the user uses a web browser to access the application. Data is usually stored on a central server outside the users premises, and communication is via the internet.
- Desktop application: Software that runs directly on the operating system of the users computer, and accesses data on a server that is usually on the user's local network.

About mSupply

- mSupply is currently a hybrid web/desktop application. It runs as a desktop application for users in the store, but a web application for customers and suppliers outside of the store who can log on to submit orders, retrieve information, submit tenders, etc.
- We are moving mSupply to allow more and more features to run as a web application. However, due to the lack of stable and fast infrastructure in most of the countries where mSupply is installed, to move mSupply to be totally a web application at this point would be a disaster for most of our clients.
- If clients wish to run mSupply with a remote server over the internet (e.g. from a server hosted in Australia or Singapore), this is currently possible using products such as Citrix or Microsoft Terminal Services. However, the infrastructure and speed issues are then similar to using a web application.
- Note that this document expresses our views, which are open to debate. We are not pro/anti a particular approach, but have spent much time over the last few years trying to plot a path forward that is good for our clients.

A reminder

- “Application development should always be driven by requirements, not technology trends....” <http://tinyurl.com/33lxxn8>

	Web application	Desktop application	mSupply notes
Speed / Responsiveness	Requires high bandwidth and low latency internet to be responsive. Even then, applications always run slower than desktop applications (Fast internet is 10Mbps, a fast local network is 100Mbps- 100 times as fast)	Almost always fast	Our busy client process 1000 transaction lines a day and are regularly choosing patients from a list of 100,000 names. We have not been able to find web application performance that will cope with this work load given the bandwidth available in developing countries.
Reliability	Doesn't depend on local server, but does require internet to be working well, and well as local network in customer premises.	Requires local server and local network to be working. Does not require internet to be working 24/7, although it is needed at times for backups and remote support.	To date we have lost no data due to servers being located at a clients premises, and we have a very high uptime record. Many of our clients have less than one hour downtime per year.
Client updates	As the software isn't installed on the client (you use a web browser), there are no client updates. However, the browser itself will need regular updates to stay ahead of security threats	Client updates are used to be difficult, but these days the application downloads new versions from the server and automatically installs them	mSupply client updates are automatic. mSupply now has built-in remote support, so (with the users permission) we can help any desktop user if they have any issues with their own machines



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Interacting with hardware	It is very difficult to interact with local hardware such as label printers.	Easy	mSupply drives label printers directly over the local network. Incorporating this sort of functionality in a web application is difficult or impossible.
Speed of developing software updates	Slow (but improving every year as new tools for web applications are developed)	Fast	Often if a client requests a new feature it can be developed one day and installed at the client site the next day
Data security	Good, from the point of view of the local client not having to worry about backups. But much higher risk as data is potentially exposed to anyone on the internet	Requires good backup strategy. Little or no risk from wider internet.	mSupply automates internet backups so you have the security of off-site backups, but live data is stored locally.
Platform independence	Good. Any platform that runs a web browser can be used, including mobile devices	Often platform specific	mSupply runs on Windows or Macintosh for the desktop application, and (of course) any platform for the web application portions.
User experience	Average (but improving fast)	Very good (and still improving)	A lot of the features in mSupply are still extremely difficult to produce in a web application (drag and drop, user customised row colours, etc). We have adopted the Sencha Javascript framework, and as the framework develops, the user experience of the web application is improving all the time.
Accessibility	Worldwide where there is internet (this also creates a security issue)	Normally accessible locally. Can be worldwide with remote access software.	The web application aspects of mSupply can be accessed from anywhere. We often use remote access to use mSupply's desktop application over the internet.
Purchase cost	Variable. If custom developed, often very high.	Lower for the same functionality.	mSupply cost: USD2350 per concurrent user.
Hardware costs	No server needed, but often need powerful client machines to cope with complex Javascript applications.	Need to purchase server (or use existing server).	mSupply client machines do not need much processing power, so often old machines still work well
Running costs	Depends on bandwidth costs	Low if appropriate hardware is purchased.	Currently the costs to our clients of providing sufficient high speed bandwidth make a web application more expensive. This will change over the coming years as bandwidth prices drop.

- Please feel free to contact us if you want more information:
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