

Electronic health records

ASP, SaaS and client/server comparison

As a physician practice looking to adopt an electronic health record (EHR) system, you have two ways to access health information technology (IT) software—whether you choose to use multiple components or modules or a single application. You can opt for the traditional (and typically more expensive) client/server model, which includes purchasing, installing and maintaining the EHR system in-house. Or, you can opt to license the EHR software and access it from a remote server hosted by an application service provider (ASP) using broadband Internet connectivity. In the ASP model, often described interchangeably with software-as-a-service (SaaS)¹, the system is hosted and maintained outside of the practice. The following table outlines key differences between these models.

	SaaS	ASP	Client/server
Overview	<p>The EHR, or other health IT modules such as eRx or registry, are developed specifically for and accessed via the Internet on a monthly subscription basis. SaaS technologies are designed specifically for multiple, simultaneous users (multi-tenant), which lends to a lower cost and more nimble software.</p> <ul style="list-style-type: none"> • Vendor remains accountable 	<p>The EHR application is hosted at a remote location on servers that may or may not be purchased by the practice. An organization, possibly the software vendor, supports the application and related hardware. The physician practice typically accesses the application via the Internet, most likely under a contract with a monthly fee schedule.</p> <ul style="list-style-type: none"> • The EHR, while not installed in the practice, is still a client/server (single-tenant) application with Web-based front end added to allow remote access to users 	<p>The EHR is installed in the physician practice. The physician practice provides server maintenance, troubleshooting, data back-ups and security. The physician practice has a perpetual license to use the application and makes payments upfront. Some practices may finance the initial licensing costs over a period of time.</p> <ul style="list-style-type: none"> • You expend more money upfront; make sure your contract addresses vendor support

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¹ Source: Stratis Health. Although some use the terms ASP and SaaS synonymously because they both are tenant models of acquisition from a financial perspective, consumers should be aware of product-related differences between the two models. The fundamental difference is that the ASP utilizes client/server software that has a Web-based front end. SaaS is distinguished primarily by the fact that it uses Web services architecture as the basis for its software design. Both ASP and SaaS models generally fit a low to middle tier of products with respect to functional sophistication. Straight licensure products are often more customizable. Such customization will not help an ASP or SaaS vendor achieve the economies of scale needed to offer a relatively low monthly rate with minimal or no upfront costs. However, the SaaS model is conducive to more frequent software enhancements due to the native Web architecture that is often more flexible than a client/server architecture.

In other industries, SaaS may be available as an “on-demand” service, where you pay only when you use the service. This may be applicable for some forms of health IT, such as e-faxing, secure messaging, personal health records, and document scanning services, where you pay per use. SaaS electronic health record systems are being developed and offered on a continually available basis for a time-based fee rather than a per use fee.

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	SaaS	ASP	Client/server
Cost	<p>No down payment</p> <p>Ongoing subscription cost (\$0*–800/month) depending on the sophistication of the technology.</p> <p>Very little administrative cost</p> <p>Maintenance included in subscription price</p>	<p>Little or potentially no down payment (expect an annual fee up to \$6,000 per user)</p> <p>Ongoing subscription cost, typically between \$300–800/per month</p> <p>Lower administrative cost</p> <p>Much of the maintenance fees are included in subscription price</p>	<p>Large upfront cash outlay (average \$25,000–\$45,000 per physician), plus annual operating and maintenance expenses from about 12–20 percent of initial costs.</p> <p>Set price</p> <p>Larger administrative and training cost</p> <p>Maintenance costs are the responsibility of the practice</p>
Hardware	<p>Workstations, including smartphones, with Web browsers</p> <p>Reduced hardware cost</p>	<p>Workstations with Web browsers</p> <p>Reduced hardware cost; however, hardware must be able to operate very specific software; may require new purchases</p>	<p>Workstations connected to server</p> <p>Direct control of hardware/software</p> <p>Greater demand on your resources</p> <p>Growth requires additional hardware</p>
Software	<p>Accessible via Web browser</p> <p>Remote access enabled via multiple devices</p> <p>Always uses newest version of software</p> <p>May require additional training</p>	<p>Accessible via Web browser</p> <p>Applications are not written/developed for the Web, so performance may be compromised, and upgrades can be as challenging as the traditional client/server model</p>	<p>Accessible via software application installed on all local workstations</p> <p>User decides when to upgrade to a new version</p> <p>Upgrades may be more complex</p>
Support needs	<p>Vendor responsible for the end-to-end delivery</p> <p>Professional service included in monthly subscription</p>	<p>For EHR software only</p> <p>Some fees included in monthly subscription</p>	<p>EHR software and server hardware</p>
Access method	<p>Broadband Internet connection</p>	<p>Broadband Internet connection</p>	<p>Local access</p> <p>Server workload may affect response time</p>
Customization	<p>Little customization possible</p>	<p>Less customization possible</p>	<p>More customization possible</p>

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	SaaS	ASP	Client/server
Upgrades	Upgrades are made by the vendor and affect all users simultaneously	Upgrades can take place overnight	Upgrades take longer to reach practice Practice must install the upgrade Practice could incur additional expense, if not specified in contract
Security	<p>Data in the “cloud”</p> <ul style="list-style-type: none"> • Privacy concerns <p>Off-site records serve as contingency plan in case of disaster</p> <p>Backups not under user control (negotiate in contract)</p> <p>Off-site records serve as contingency plan in case of disaster</p> <p>Generally stronger security measures than many practices have in place with paper records</p> <p>Vendor bankruptcy could result in data loss (practice must negotiate this in contract)</p>	<p>Internet access/connectivity issues</p> <p>Backups not under user control (negotiate in contract)</p> <p>Off-site records serve as contingency plan in case of disaster</p> <p>Generally stronger security measures than many practices have in place with paper records</p> <p>Vendor bankruptcy could result in data loss (practice must negotiate this in contract)</p>	<p>Server security breaches possible</p> <p>Back-ups under user control</p> <p>Vendor bankruptcy results in unsupported system but no data loss</p>
Data ownership	<p>Physician practice owns its data</p> <ul style="list-style-type: none"> • Negotiate data rights/ retrieval in contract 	<p>Physician practice owns its data</p> <ul style="list-style-type: none"> • Negotiate data rights/ retrieval in contract 	<p>Physician practice owns/ maintains its data</p>
Contract	<p>As short as month-to-month</p> <p>Practice must understand and manage service level agreements</p>	<p>As long as five years or as short as one; three-years average</p> <p>Practice must understand and manage service level agreements</p>	<p>No term commitment</p> <p>Contract covers purchase and ongoing maintenance</p>

*Reflects pricing for electronic prescribing and EHR offered by San Francisco-based Practice Fusion.