Components and Objects

Objects enable concepts to be developed using abstractions that represent real-world and computing concepts. The objects are interconnected to form programs that perform useful tasks. Components are also objects. However, components have the added dimension that they represent an economically and technologically practical way to organize and package an object-oriented system. A component system can be developed, marketed, licensed, maintained, and enhanced on a component basis.

In an informal sense, components are just "bigger" objects. With this bigness comes the need, and fortunately, the technical feasibility to support computing capabilities that are impractical for traditional "small" objects. For example, most component development technologies enable a component's external interfaces to be accessed through several different programming languages, and these accesses can often be performed across a network. It would be overwhelming to support these capabilities for every small object. However, supporting the capabilities becomes practical when objects are organized into bigger components.

Components can also be more cost-effective to develop and maintain than small objects. This is because components do more. Similarly, components can be more efficient to develop and maintain than traditional monolithic programs. This is because components don't try to do everything.

In a well-architected system, each component will provide enough functionality to warrant development as a standalone entity that can nevertheless be combined with other components to form fully functional applications. In a well-architected system, each component will be a candidate for being catalogued as a product and marketed as an essential building block for an overall system.

Examples of healthcare-related software components include a component that describes and correlates medical terms based upon standard schemes for encoding medical terminology, a component that checks whether medications being ordered for a patient might interact in an adverse manner, a component that enables viewing physiological waveforms in a manner that preserves aspect ratios and display size even when viewed on different display devices, and a component that enables applications to send and receive patient data based upon healthcare electronic data interchange standards.