Limitations of AWT, MVC Architecture, Components & Containers

Limitations of AWT:

The AWT defines a basic set of controls, windows, and dialog boxes that support a usable, but limited graphical interface. One reason for the limited nature of the AWT is that it translates its various visual components into their corresponding, platform-specific equivalents or peers. This means that the look and feel of a component is defined by the platform, not by java. Because the AWT components use native code resources, they are referred to as heavy weight.
The use of native peers led to several problems. First, because of variations between operating systems, a component might look, or even act, differently on different platforms. This variability threatened java's philosophy: write once, run anywhere. Second, the look and feel of each component was fixed and could not be changed. Third, the use of heavyweight components caused some frustrating restrictions.

Due to these limitations Swing came and was integrated to java.

Swing is built on the AWT.
Two key Swing features are:
> Swing components are light weight,
> Swing supports a pluggable look and feel.

The MVC Connection:
In general, a visual component is a composite of three distinct aspects:
- The way that the component looks when rendered on the screen
- The way that the component reacts to the user
- The state information associated with the component.

The Model-View-Controller architecture is successful for all these.

Components and Containers:
A component is an independent visual control, such as a push button. A container holds a group of components. Furthermore in order for a component to be displayed it must be held with in a container.
Swing components are derived from JComponent class. Note that all component classes begin with the letter J. For example a label is JLabel, a button is JButton etc.
Swing defines two types of containers. The first are top level containers: JFrame, JApplet, JWindow, and JDialog. These containers do not inherit JComponent. They do, however inherit the AWT classes Container and Component. Unlike Swing's other components which are heavy weight, the top level containers are heavy weight. The second type of containers are light weight inherit from JComponent. Example- Jpanel.