Basic Elements, Shapes, Brushes and Masks

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DependencyObject

- Object that participates in the dependency property system

UIElement

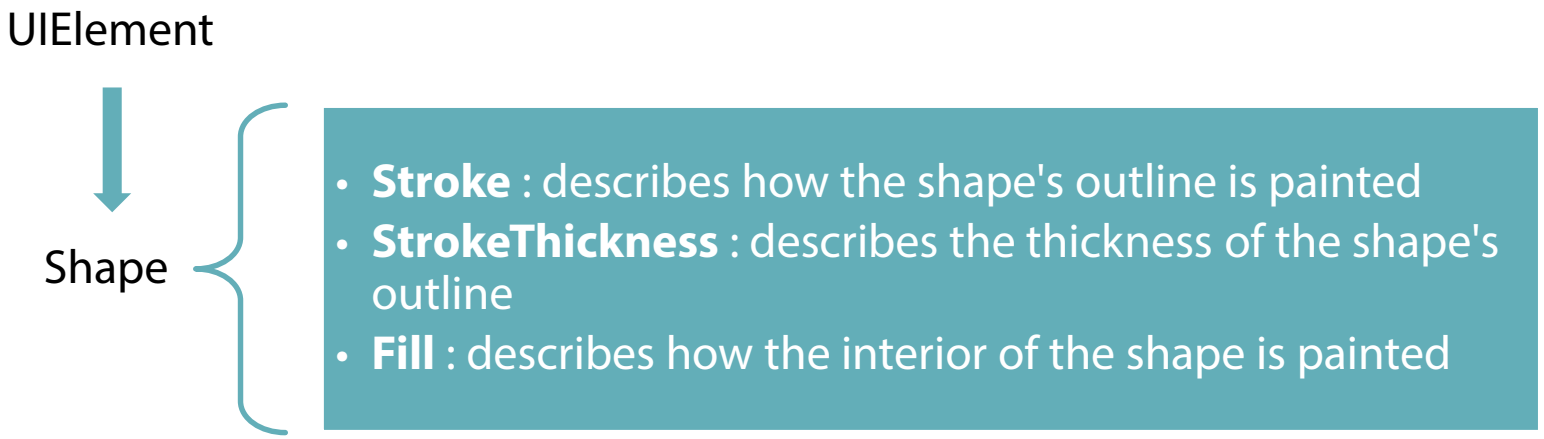
- Base class for objects that can have a visual appearance
- Supports basic manipulation, basic appearance, basic layout
- Can respond to user input, can raise routed events, supports some aspects of animation system

FrameworkElement

- FrameworkElement potentially participates in layout and should have a display area in the app UI
- Adds Height, Width, Alignment and Margin properties
- Supports DataContext

Visualize: Say Hello to Shapes

A Shape provides a visual representation and is thus the base of many other XAML elements.



Common shapes: Rectangle, Ellipse, Line, Path, Polygon, Polyline

The Path Deserves an Extra Slide

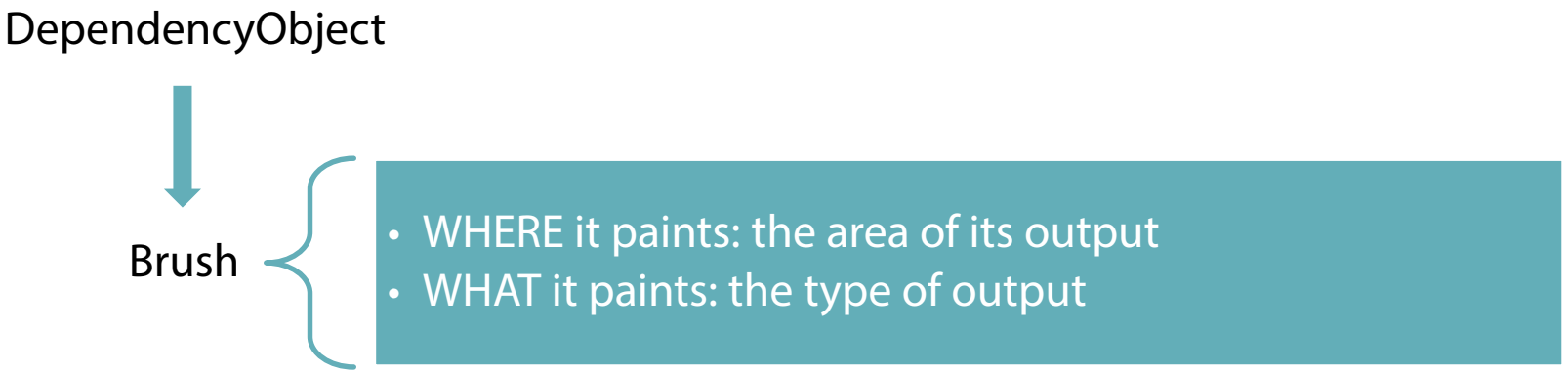
… because Path, a type (superclass) of Shape, enables complex shapes, described using Geometry objects.

- **To use a Path**
  - Create a Geometry
  - Use it as the Path's Data property

- **Shape versus Geometry**
  - A Geometry object is more versatile & lightweight
  - … but it's less readily usable

How to Paint (A Shape): The Various Brushes

Without brushes, we would simply see nothing our screen



Different Brush types exist: SolidColorBrush, LinearGradientBrush, RadialGradientBrush, ImageBrush, VideoBrush

The Various Brushes

SolidColorBrush

LinearGradientBrush

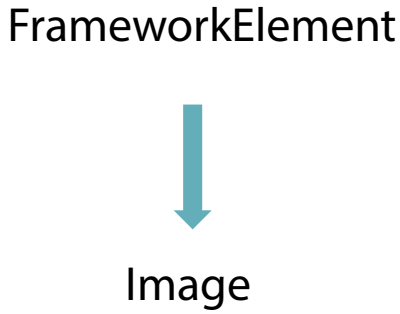
RadialGradientBrush

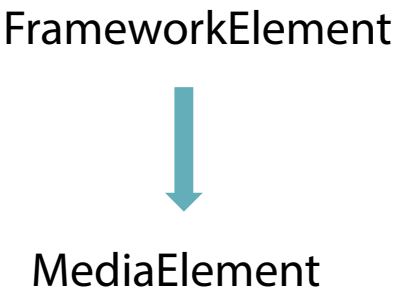
ImageBrush

VideoBrush

On Images and Media

While XAML is vector-based, sometimes you just want to use a Bitmap in your application – the Image tag takes care of this.





Other types of media, like audio and video, are supported as well. Use the MediaElement tag to implement these in your application.

One Step Beyond: Masks

Sometimes, we want to make an element (partially) transparent, or clip a part of the element. That's where Masks come in.

UIElement.OpacityMask

- Used to make portions of a UIElement (partially) transparent
- Maps its content to the UIElement it's related to by looking at the alpha channel
- Brush

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One Step Beyond: Masks

UIElement.Clip

- Everything outside of the clipping mask is invisible
- Geometry

Summary

- **DependencyObject, UIElement and FrameworkElement**
- **Shapes: visual representation**
- **Brushes**
  - WHERE (output area)
  - WHAT (output type)
- **Masks**
  - Opacity, Clip