

XBox Project Cluster, E2006

XNA Game Components

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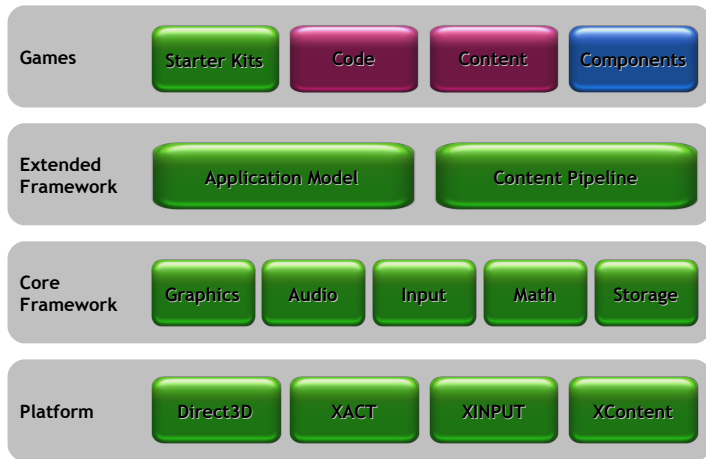
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What Are Game Components?

- ▶ The foundation of games in XNA is the `Game`.
- ▶ Each `Game` object have a collection of `GameComponents`
- ▶ Game components are supposed to little nuggets of functionality, graphics or logic.
- ▶ The “VB-Controls” of game construction

Microsoft's Vision For Game Components



Legend

XNA Provides

You Provide

Community

The Basic Setup

```
using System;
using System.Collections.Generic;
using Microsoft.Xna.Framework;
using Microsoft.Xna.Framework.Components;
...
public partial class MyComp : Microsoft.Xna.Framework.GameComponent {
    public MyComp() {
        // TODO: Add your initialization code here
        InitializeComponent();
    }
    public override void Start() {
        // TODO: Add your start up code here
    }
    public override void Update() {
        // TODO: Add your update code here
    }
    public override void Draw() {
        // TODO: Add your drawing code here
    }
}
```

Game Loop Timing, When Is Update Called

- ▶ An XNA game is either **fixed step** or **variable step** (default is fixed).
- ▶ A **fixed step** game tries to call its Update method on a fixed time interval (specified by `TargetElapsedTime`). Failing to meet the deadline, Update will be called extra times, but the frames will be dropped.
- ▶ A **variable step** games calls its Update method as soon as the previous frame is done rendering. Thus, animations and logic should be based on elapsed time. The time elapsed between Update calls is available in `ElapsedTime`.

Ups and Downs

- ▶ The integration of game components with Visual Studio look really sweet.
- ▶ However, to me it seems that not all the pieces of the infrastructure is in place for Microsoft's vision to be fulfilled.
- ▶ Game Services seem to be an important ingredient of that infrastructure. But little documentation exists.

```
IGraphicsDeviceService graphicdeviceservice;  
graphicdeviceservice =  
    Game.GameServices.GetService<IGraphicsDeviceService>();
```

- ▶ Does it scale? What if you have millions of game components?

Demo Day

All groups should give a demo showing their halfway status at October 23.