

# Introduction to Cairngorm

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## Session Outline

- OVERVIEW
- RESOURCES
- PROs AND CONs
- CAIRNGORM CHALLENGE
- DEMOS
- FUTURE
- Q & A

*Note: Presentation slides and support files online at:*  
<http://halcyonsolutions.net/presos/flex360/>

## Introduction

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- Greg Hamer  
[greg@halcyonsolutions.net](mailto:greg@halcyonsolutions.net)
  - Web application developer, entrepreneur and educator
    - Flex 2, Flash (since MX), Flash Media Server, Flash Video, ColdFusion, Java, SQL (MySQL, Microsoft, Sybase), HTML.
    - Adobe Certified Instructor (all of the above)
    - Active Developer (all of the above)
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## Who This Session is Targeted At

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- Developers not yet using Cairngorm
  - Developers who have encountered Cairngorm and do not yet fully grasp the Cairngorm code authoring model
  - Managers
  - Importantly, people who have to persuasively state the case in favor of adopting Cairngorm, ie "sell" adoption
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# Attendee Current Skill Survey

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## *SHOW OF HANDS ...*

- How many currently using Cairngorm?
    - How many currently very comfortable using?
    - How many have Cairngorm apps in production?
  - How many got thrown into Cairngorm? (e.g. because you joined a team using Cairngorm)
  - How many have heard buzz about Cairngorm and are here to find out whassup?
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# OVERVIEW

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## Synopsis

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- Cairngorm is a "microarchitecture"
    - Cairngorm integrates a number of Design Patterns that are well established and well documented.
    - Cairngorm's microarchitecture is documented in series of 6 articles by Steven Webster.
      - First article here:  
[http://www.macromedia.com/devnet/flex/articles/cairngorm\\_pt1.html](http://www.macromedia.com/devnet/flex/articles/cairngorm_pt1.html)
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## Process – Getting Started w/ Cairngorm

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- Download Cairngorm Classes/SWC
    - <http://labs.adobe.com/wiki/index.php/Cairngorm>
  - Add the Cairngorm SWC to project library path
    - Select project in Navigator
    - From menu: Project > Properties > Flex Build Path > Library Path > Add SWC
  - Implement directory structure and application classes using Cairngorm
    - Optionally generate class skeletons using code generators
  - Build your view classes
-

## When To Use and Not To Use

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- The use of Cairngorm introduces additional overhead to the development process.
  - Due to additional overhead, following project types offer limited opportunity for payback imposed by the additional overhead:
    - Small or micro applications, i.e. only one or two views
    - Short-lived, i.e. prototypes
    - Solo developers
  - The more large scale, long-lived and larger the development team the more the benefits.
  - For more, see "Why I think you shouldn't use Cairngorm" by Steven Webster:  
[http://weblogs.macromedia.com/swebster/archives/2006/08/why\\_i\\_think\\_you.cfm](http://weblogs.macromedia.com/swebster/archives/2006/08/why_i_think_you.cfm)
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## What is Up With That Name -> Cairngorm

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- Started as open source project
  - Committers were with Iteration::Two
    - Based in Glasgow Scotland
  - With open source, project founders get to pick the name ;-)
  - Cairngorm Mountain is in Scotland and is the tallest peak in the UK
    - Who knew there was skiing in the UK? There is on Cairngorm Mountain :-)
    - For details, see: <http://cairngormmountain.co.uk/>
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## Not Commercial, Not Open Source

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- Cairngorm is not a commercial product
  - Package names originally org.nevis then com.iterationtwo
  - Macromedia acquired Iteration::Two
  - Package names now com.adobe
  - Copyright now:  
Copyright (c) 2006. Adobe Systems Incorporated.  
All rights reserved.
  - Today, the original Iteration::Two team are members of Adobe Consulting EMEA group
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## Not Commercial, Not Open Source

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- Flex documentation no where includes the word "Cairngorm"
    - Yes, Cairngorm is closely associated with Flex, but
    - Cairngorm is in no way "officially" a part of the Flex product
  - Currently Cairngorm lives at labs.adobe.com
    - Under the heading "Other Technologies"
  - At present, technically not open source nor a commercially supported product
    - E.g. no bugbase
    - License currently Adobe owns
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# RESOURCES

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## Cairngorm 101 – Resources

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- <http://labs.adobe.com/wiki/index.php/Cairngorm>
    - Source code, documentation, Cairngorm.SWC
  - <http://cairngormdocs.org/>
    - Sample applications and blog
  - **6 Part Series by Steven Webster**  
[http://www.macromedia.com/devnet/flex/articles/cairngorm\\_pt1.html](http://www.macromedia.com/devnet/flex/articles/cairngorm_pt1.html)  
Note: Code samples obsolete for Cairngorm 2.2.  
(Examples use Cairngorm 2.0. Packages org.nevis)
  - **Mailing Lists**
    - <http://tech.groups.yahoo.com/group/flexcoders/>
    - <http://tech.groups.yahoo.com/group/cairngorm-documentation/>
    - <http://tech.groups.yahoo.com/group/cairngorm-devel/>
  - **Books: NONE**
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# Cairngorm 101 – Resources

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## ■ Code Generators

- Ant based:  
<http://www.ericfeminella.com/blog/cairngen/>
- Online  
<http://www.tylerbeck.com/archives/23/introducing-cairngorm-creator/>

## ■ Adobe Blog Aggregator

<http://weblogs.macromedia.com/mxna/>

Note: Use "Search" box entering cairngorm

## ■ User Groups

- Flex Only: <http://www.flex.org/community/#usergroups>
- All: <http://www.adobe.com/cfusion/usergroups/>

## ■ Conferences

- <http://www.adobe.com/products/flex/events/index.html>
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# PROs AND CONs

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## What Cairngorm Is – PROs

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- Free of licensing costs
  - Extensively used and tested on large-scale RIA projects
  - A sizeable community of developers already versed in Cairngorm and actively supporting and evolving Cairngorm
    - There are other community projects that solve the same problems that Cairngorm does
      - ARP , MVCS, PureMVC, Guasax
      - Cairngorm has "early mover advantage", larger community, and more well proven in production
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## Cairngorm Benefits

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- Logical structure and isolation of code, which supports:
    - Coding
    - Debugging
  - Enforces:
    - Loose coupling
    - Event driven interaction
  - Team development
    - Individual code check out
    - Team turnover
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## Cairngorm – Criticisms

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- Too many files
  - Versus traditional OO Design where methods are members of the class, Cairngorm puts each method in its own class

## What Cairngorm Is Not – CONs

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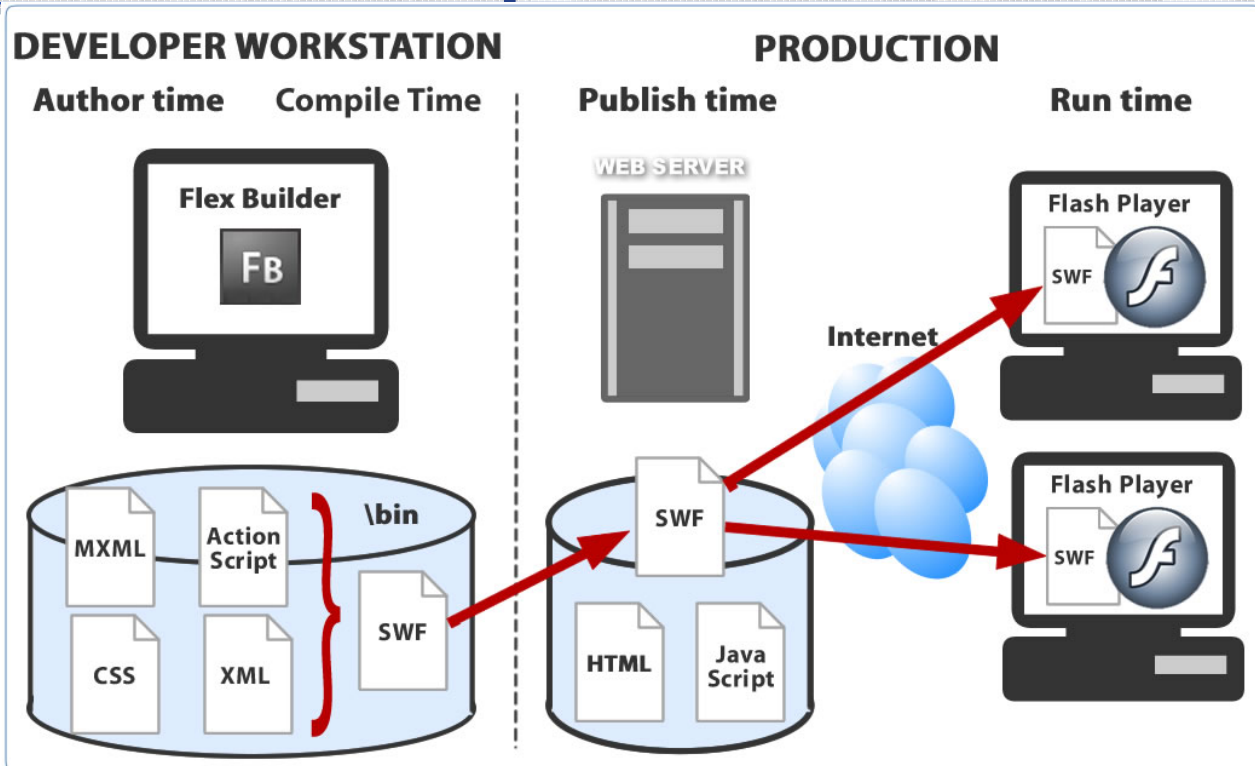
- Cairngorm impacts author-time only (next slide)
- Cairngorm introduces additional author-time overhead
- Cairngorm introduces additional staff learning requirements
- Cairngorm in no way provides any short cuts on learning Flex
  - Cairngorm is "in addition to" Flex, not "instead of"
- Cairngorm in now way enhances the visual appearance of your apps

# Run-Time Performance – Not Cairngorm

- Cairngorm's benefits do not include the solution of any issues related to run-time performance
- In Flex, for improving run-time performance tools include:
  - Modules
  - RSLs (Runtime Shared Libraries)
  - Framework caching (coming in Flex 3)
- Cairngorm benefits solely in authoring and code maintenance!

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## Flex Development:



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# CAIRNGORM CHALLENGE

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## CAIRNGORM CHALLENGE

Source: Steven Webster, August 21, 2006

Why I think you shouldn't use Cairngorm

- So here's the Cairngorm challenge. The rite of passage for Flex developers everywhere. Open Flex Builder, and create a new Flex project. Import the cairngorm SWC – that's right, not the source code, import the SWC.
- Now, write yourself a simple Cairngorm application, that displays a datagrid, calls a publicly available web-service somewhere, and then renders the results in the data grid.
- Here's a clue – you're going to register one event with the controller, you're going to write one command class to get the results, and to update the model locator when the results come in, you're going to create a business delegate class for your command to invoke the web service with, and you're going to register the web service with the service locator.

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## CAIRNGORM CHALLENGE

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- NOTE: Steven's Cairngorm Challenge ends with the following:
  - Now this is way overkill for calling a webservice to populate a data grid. But if you're ready for working with Cairngorm, the above will be HelloWorld.cpp to you ...

## CAIRNGORM CHALLENGE

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- For Challenge, going to use HTTPService
  - URL=  
<http://labs.adobe.com/technologies/spry/demos/products/products.xml>
- Minimal UI
  - Just bind to datagrid

# CAIRNGORM CHALLENGE

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- We are going to do in 2 parts
  - Create app without Cairngorm
  - Convert app to use Cairngorm

## Quick and Easy – No Cairngorm

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# DEMO

## CAIRNGORM CHALLENGE

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## CAIRNGORM CHALLENGE

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- Import the cairngorm SWC
  - Register one event with the controller
  - Write one command class
    - to get the results, and
    - to update the model locator when the results come in
  - Create a business delegate class
    - for your command to invoke the web service with
  - Register the web service with the service locator.
- 

## Process – Getting Started w/ Cairngorm

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  - Build your view classes
-

## Sources for Source & Sample Code

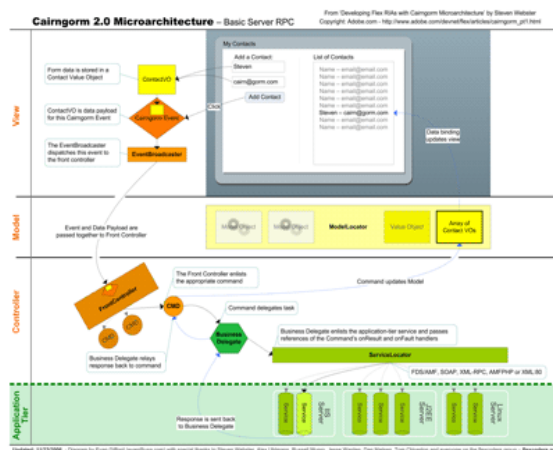
- **Cairngorm Classes/SWC**
    - <http://labs.adobe.com/wiki/index.php/Cairngorm>
  - **Templates for application files**
    - Sample applications at:  
<http://cairngormdocs.org/>
  - **Code Generators**
    - Ant based:  
<http://www.ericfeminella.com/blog/cairngen/>
    - Online  
<http://www.tylerbeck.com/archives/23/introducing-cairngorm-creator/>
  - **6 Part Series by Steven Webster**  
[http://www.macromedia.com/devnet/flex/articles/cairngorm\\_pt1.html](http://www.macromedia.com/devnet/flex/articles/cairngorm_pt1.html)  
Note: Code samples obsolete for Cairngorm 2.2.  
(Examples use Cairngorm 2.0. Packages org.nevis)
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## Cairngorm Classes – Overview

- **FrontController Class (AS, extends FrontController)**
    - A single point of entry for all Cairngorm events
    - Register listeners for events along with the command class to be called using `addCommand()`
  - **ModelLocator Class (AS, implements ModelLocator)**
    - A singleton for access of data stored in the swf
  - **ServiceLocator Class (MXML, extends ServiceLocator)**
    - A singleton for service access
  - **Event Class (AS, extends CairngormEvent)**
    - Represent user requests or system events
  - **Command Class (AS, implements ICommand, IResponder)**
    - Set data on the Model
  - **VO Class (AS, generally a base class)**
    - Represents data used in the application
  - **Delegate Class (AS, base class with required properties)**
    - Makes the server call and parse the data
-

# Cairngorm Diagram

- Visualization of Cairngorm application processing
  - <http://cairngormdocs.org/blog/?p=18>
  - <http://www.cairngormdocs.org/tools/CairngormDiagramExplorer.swf> [Local Copy]



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# One-Time vs Recurring

- Using Cairngorm, generally speaking, some set-up is:
  - One-Time
  - Recurring

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## ONE-TIME

- Cairngorm, either
  - Add Cairngorm.SWC in Flex Builder
    - Select project in Navigator, then from menu: Project > Properties > Flex Build Path > Library Path
  - Add Cairngorm class files
- Directory / Package Creation
- File / Class Creation
  - FrontController Class (AS, extends FrontController)
  - ModelLocater Class (AS, implements ModelLocator)
  - ServiceLocator Class (MXML, extends ServiceLocator)

## RECURRING

- File / Class Creation -- Option A (versus Option B below)
  - Event (AS, extends CairngormEvent)
  - Command (AS, implements ICommand, IResponder)
  - VO (AS, generally a base class)
  - Delegate (AS, base class with required properties)
- File / Class Update
  - FrontController Class
    - Imports
      - For each event
      - For each command
    - In Constructor, register listeners for events along with the command class to be called using addCommand():
      - addCommand(commandName:String, commandRef:Class):void
  - Option B (multiple methods on classes)
    - Event
    - Command
    - Delegate

## If Cairngorm looks complicated ... it is ...

Source:

10 Tips For Working With Cairngorm by Jesse Warden

<http://jessewarden.com/2007/08/10-tips-for-working-with-cairngorm.html>

### ■ 1. If Cairngorm looks complicated, don't worry, it is, and you're not alone.

It takes getting used to. I felt "comfortable with Cairngorm" on my 4th project with it. To this day, I still mod it though, and try different things.

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  - Makes the server call and parse the data

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# DEMO

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### ■ AIR

#### □ See: AIR Cairngorm (AIR extensions for Cairngorm)

<http://www.ericfeminella.com/blog/2007/07/16/air-cairngorm-air-extensions-for-cairngorm/>

- AIRServiceLocator
- SQLService
- ISQLResponder
- ISQLStatementResource
- SQLStatementHelper

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# Q & A

# THANK YOU!

# THE END