Handlers: A modest proposal

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Extensibility

- Make system do something new
- No code changes
- "Bendy"
Extensibility in Drupal

- Modules
  - Collections of hooks

- Hooks
  - One-to-many
  - Observer pattern
  - Inversion of control pattern
Horizontal extensibility

- Add new pieces to existing systems if designed for it
- Cannot change system
- Subsystems are inter-dependent
Vertical extensibility

- Swap out subsystems
- Subsystems are independent
- Current mechanism: custom include files
Swapping include files sucks

- Breaks registry
- Clunky
- Cannot lazy-load
- Cannot enable more than one version at a time
"Pluggable" subsystem

- **Self-contained** piece of code
- **Called explicitly** from some other code
- Handle some particular *set of related operations*
- Can be **swapped out** for another implementation at runtime
- Supports **multiple** simultaneous implementations
What about hooks?

- Implicit call
- One-to-many, not many-to-one
- Multiple related operations are iffy
  - $op
  - prefixes
Factory pattern

- OOP design pattern
- Layer of indirection
- Returns object with interface
- Variable implementation
Handler.module

- 2 hooks
  - hook_handler_target_info()
  - hook_handler_info()

- 2 concepts
  - Targets
  - Handlers

- PHP 5.2
Targets

- Task or subsystem
- Defines uniform interface
- Factory function
Handlers

- Class implementing a target's interface
- Gets called indirectly (but explicitly)
- "Handles" some operation(s)
- May be static or not
It's so simple!

- Interface
- Concrete class
- Factory
Example
Possible current handlers

- Cache
- Password hashing
- Session handling
- Mail system
- Image toolkit
- Others?
New handlers

- Username/display name generation
  - http://drupal.org/node/102679
- Version Control API
  - SVN vs. CVS vs. Git vs...
- File storage backends
  - Local, CDN, Ramdisk...
New handlers

- Search engine
  - Local, Google, Lucene, Xapian...
- Authentication/identity
  - Local, OpenID, LDAP...
- Theme engines?
  - PHPTemplate vs. Smarty vs. PHPTal...
What about...

- **Menu?**
  - `menu() -> executeActiveHandler();`
- **Form?**
  - `$form = form() -> load('myform') -> execute();`
- **Response**
  - Page, AHAH, JSON, REST...
  - Switch on HTTP headers
Advantages

- Cleaner separation of systems
- Automagic lazy loading
- Replace any code in Drupal w/out perf. cost
  - Subclass, associate, go.
  - No core hacking
No kittens were harmed in the making of this handler

Every time you hack core
God kills a kitten
Please, think of the kittens!

From your friend, Greg Dunlap
Feedback

- Handlers are...
  A) Ready To Be Committed!
  B) Concept Needs Work.
  C) Won't Fix. :-(