



FOUR KITCHENS

Outgrowing Content Types: Building Custom Entities

BADCamp

October 4, 2019

Jim.Vomero@FourKitchens.com

  @nJim





Four Kitchens builds websites and apps for organizations that depend on large-scale or unconventional content.

What is an entity?





► **Choose language**

Verify requirements

Set up database

Install site

Install 200+ modules

Finished

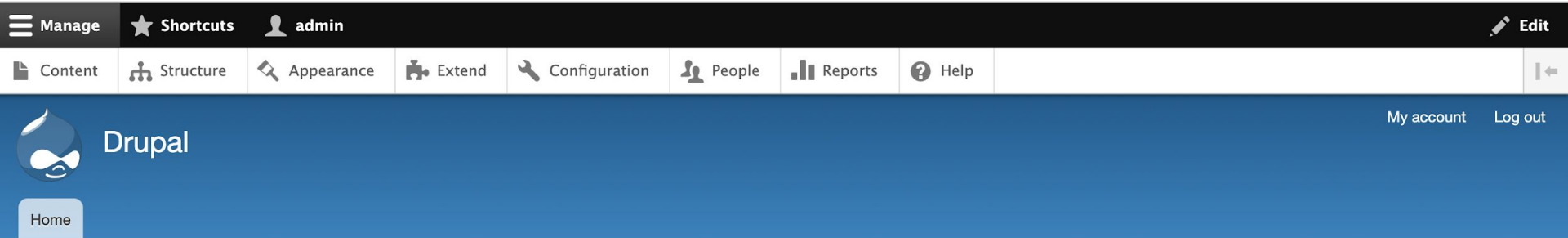
Drupal 6

- Added a DB abstraction layer.
- CCK module extended content types.
- The idea of *fieldable-content* pushed us toward making everything a node.



Drupal 7

- Intentionally an abstract term, entities are objects that are used for *persistent storage of content and configuration* information
- Entities become a stdClass in core.
- Nodes, Taxonomy, Users, others are fieldable.



Drupal 8

- Entities are defined with typed objects.
- Interfaces enforce consistent implementations.
- Includes *Content and Configuration* entities. While both are relevant, this presentation will focus on content entities.

Core & Contrib Entities



Core Entities

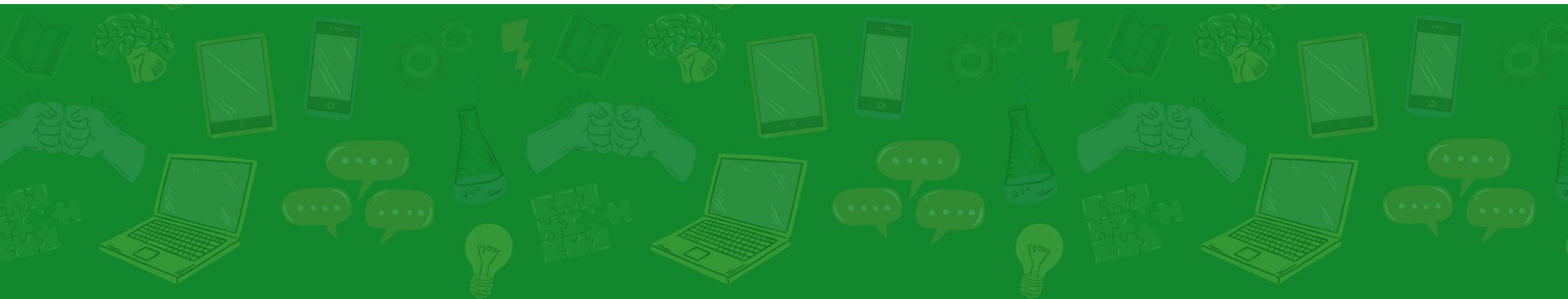
Entity	Bundle	Module	Usage
Content	Content Type	node	Traditional content page.
User	<i>none</i>	user	Access accounts.
Custom Block	Block Type	custom_block	Ancillary content items.
Taxonomy Term	Vocabulary	taxonomy	Tagging and feeds.
Media	Media Type	media	Multimedia and metadata.
File	<i>none</i>	file	Files and metadata.
Additional core entities include: Comment, Contact Form, Menu Link Content, and Shortcut among others.			

Contrib Entities

Entity	Module	Usage
Paragraph	paragraph	Content components.
Webforms / Submissions	webform	Form builder / storage.
Pathauto Patterns	pathauto	URL alias definitions.
Metatag Defaults	metatag	Per content metatag settings.
Redirect	redirect	Redirect (4xx response) management.
Group	group	Define entity collections.

Why create custom entities?

- Presentation
- Reducing Overhead
- Access
- Performance
- Optimizing Builds
- Storage



Reason #1: Reducing Overhead

When content types are too big.



JIM VOMERO
SENIOR ENGINEER

At any given moment, the urge to sing, "The Lion Sleeps Tonight" is just a whim away, a whim away, a whim away.

[LEARN MORE](#)



93%

SURVEY RESULTS

According to a recent survey, replacing words with the names of musical instruments in a sentence, often goes undetected.

[Download Report](#)

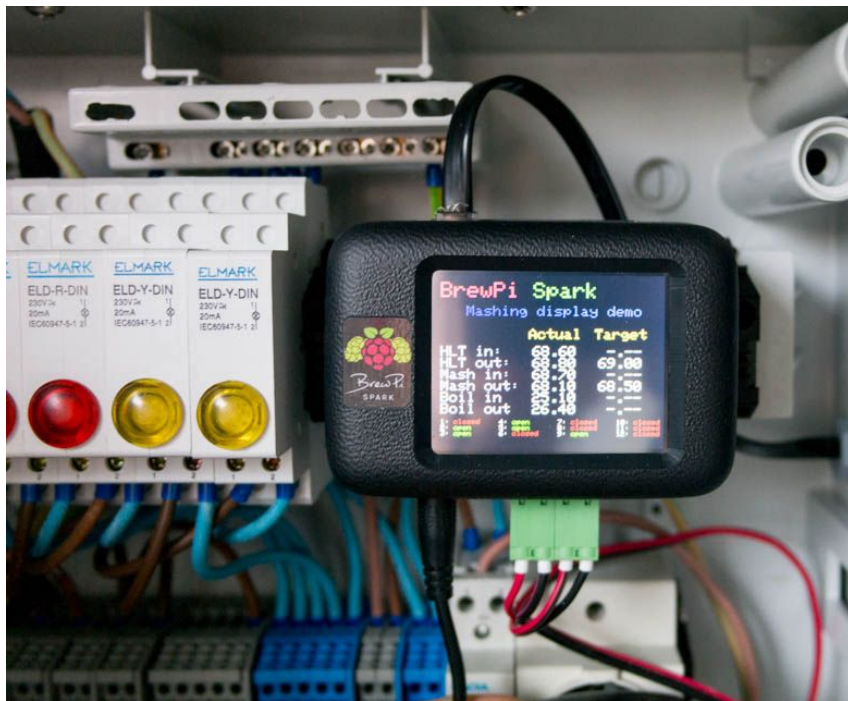


I was gonna tell a time travelling joke but you didn't like it

BY JIM VOMERO, JUNE 19, 2018

Reason #1: Reducing Overhead

When content types are too big.

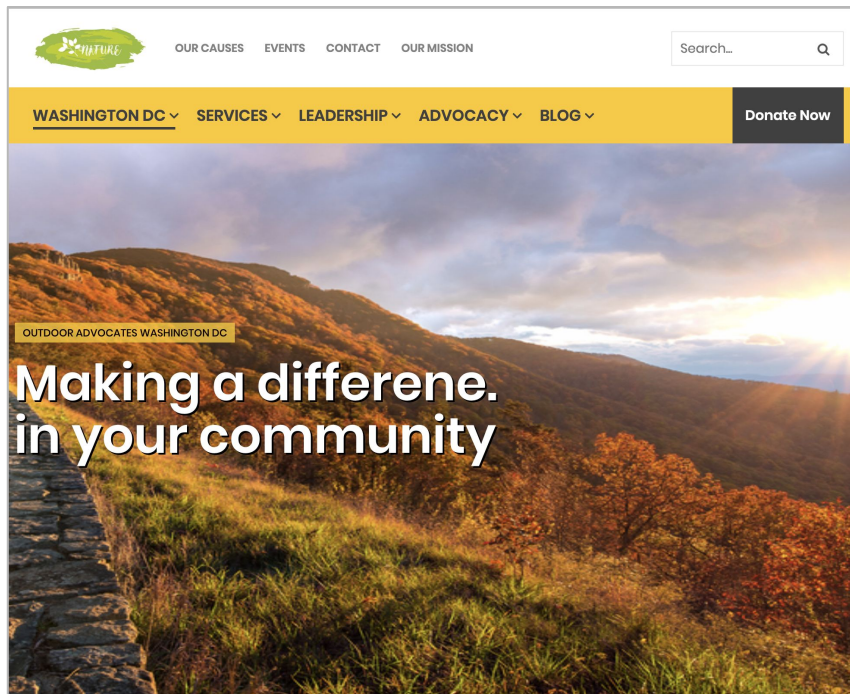


Raspberry Pi Data Feed

- New temperature reading every minute via API.
- Logs include temperature and timestamp only.
- No need for traditional editorial controls.

Reason #2: Optimizing

When content types are too small.



Regional Microsites

- Non-Profit is adding sites for each metro area.
- Organization wide content will mix with local.
- Stakeholders value consistency between sites.

Reason #3: Presentation

Presenting customized editorial experiences.

For the week	Status	Talent	Report to	Date signed
Oct 30, 2017 - Nov 05, 2017	Signed	Dylan McKay	Nick Peterson	Nov 06, 2017
Oct 30, 2017 - Nov 05, 2017	Approved	Maggie Patel	Nick Peterson	Nov 06, 2017
Oct 23, 2017 - Oct 29, 2017	Approved	Dylan McKay	Nick Peterson	Oct 30, 2017
Oct 23, 2017 - Oct 29, 2017	Approved	Maggie Patel	Nick Peterson	Oct 30, 2017
Oct 16, 2017 - Oct 22, 2017	Approved	Dylan McKay	Nick Peterson	Oct 23, 2017
Oct 16, 2017 - Oct 22, 2017	Approved	Maggie Patel	Nick Peterson	Oct 23, 2017
Oct 09, 2017 - Oct 15, 2017	Approved	Dylan McKay	Nick Peterson	Oct 16, 2017
Oct 09, 2017 - Oct 15, 2017	Approved	Maggie Patel	Nick Peterson	Oct 16, 2017
Oct 02, 2017 - Oct 08, 2017	Approved	Maggie Patel	Nick Peterson	Oct 09, 2017
Oct 02, 2017 - Oct 08, 2017	Approved	Dylan McKay	Nick Peterson	Oct 09, 2017

Showing 1 - 10 of 78

PREV 1 2 3 4 5 ... 8 NEXT


Show 10 per page ▾

Timecards

- Unique access for Staff, Manager, and Finance.
- Different forms based user role and workflow status.
- All changes logged for financial integrity.

Reason #4: Access

Defining unique access controls & permissions.

University Help Desk 						
ID	SUBJECT	REQUESTER	STATUS	PRIORITY	UPDATED	
<input type="checkbox"/>	1 Camera missing SD card	Pending Erin J. Cantrell	Pending Support	Low	22 minutes ago	
<input type="checkbox"/>	3 Tech podium lock broken	Pending Samuel V. Campbell	Pending Support	High	17 minutes ago	
<input type="checkbox"/>	4 New student access	Pending George D.	Pending Support	Low	16 minutes ago	
<input type="checkbox"/>	5 Request group study space	Pending James E. Foerster	Pending Support	Medium	15 minutes ago	
<input type="checkbox"/>	6 Cant find registration form	Pending Janie D. Fierro	Pending Support	Low	15 minutes ago	
<input type="checkbox"/>	7 NEED PHOTOSHOP	Pending Paul Wilson	Pending Support	Urgent	14 minutes ago	
<input type="checkbox"/>	8 TRAINING FOR VIDEO STUDIO	Pending JAMES LINEBERRY	Pending Support	Low	13 minutes ago	
<input type="checkbox"/>	9 Computer Crashed	Pending Elliot Bean	Pending Support	Low	11 minutes ago	
<input type="checkbox"/>	10 printer paper	Pending Rhonda Collins	Pending Support	Low	11 minutes ago	
<input type="checkbox"/>	11 Looking for audio adapter	Pending Carol Marie Earle	Pending Support	Medium	10 minutes ago	
<input type="checkbox"/>	12 Copier won't take access code	Pending Nielsen	Pending Support	Low	2 minutes ago	
<input type="checkbox"/>	13 Follow up on classroom training	Pending Jose J.	Pending Support	Low	1 minute ago	
<input type="checkbox"/>	14 Projector reservation finals week!	Pending Jeff Frailey	Pending Support	Low	Just Now	

Ticketing System

- Multiple issue types with unique workflows.
- Dynamic permissions per role, type, and status.
- User, Help Desk, Admin Management roles.

Reason #5: Leveraging Bundles

Reusing content definitions through bundles.

Session

Title
Location
Timeslot
Description
Image
Track

Keynote

Title
Location
Timeslot
Description
Image
Banner Image

Workshop

Title
Location
Timeslot
Description
Image
Track
Registration

Social

Title
Location
Timeslot
Description
Image
Registration

BOF

Title
Location
Timeslot
Description

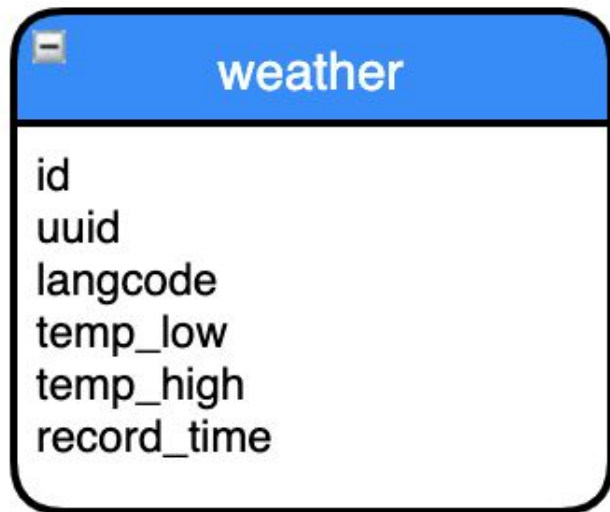
Reason #6: Performance Tuning

When performance is an high valued goal.

<div><div>node</div><div>nid vid type uuid langcode</div></div>	<div><div>node_revision</div><div>nid vid langcode revision_timestamp revision_uid revision_log revision_default</div></div>	<div><div>node__field_temp_high</div><div>bundle deleted entity_id revision_id langcode delta field_temp_high_value</div></div>	<div><div>node__field_temp_low</div><div>bundle deleted entity_id revision_id langcode delta field_temp_low_value</div></div>	<div><div>node__field_record_time</div><div>bundle deleted entity_id revision_id langcode delta field_record_time_value</div></div>
<div><div>node_field_data</div><div>nid vid type langcode status title uid created changed promote sticky</div></div>	<div><div>node_field_revision</div><div>nid vid langcode status title uid created changed promote sticky</div></div>	<div><div>node_revision__field_temp_high</div><div>bundle deleted entity_id revision_id langcode delta field_temp_high_value</div></div>	<div><div>node_revision__field_temp_low</div><div>bundle deleted entity_id revision_id langcode delta field_temp_low_value</div></div>	<div><div>node_revision__field_record_time</div><div>bundle deleted entity_id revision_id langcode delta field_record_time_value</div></div>

Reason #6: Performance Tuning

When performance is an high valued goal.

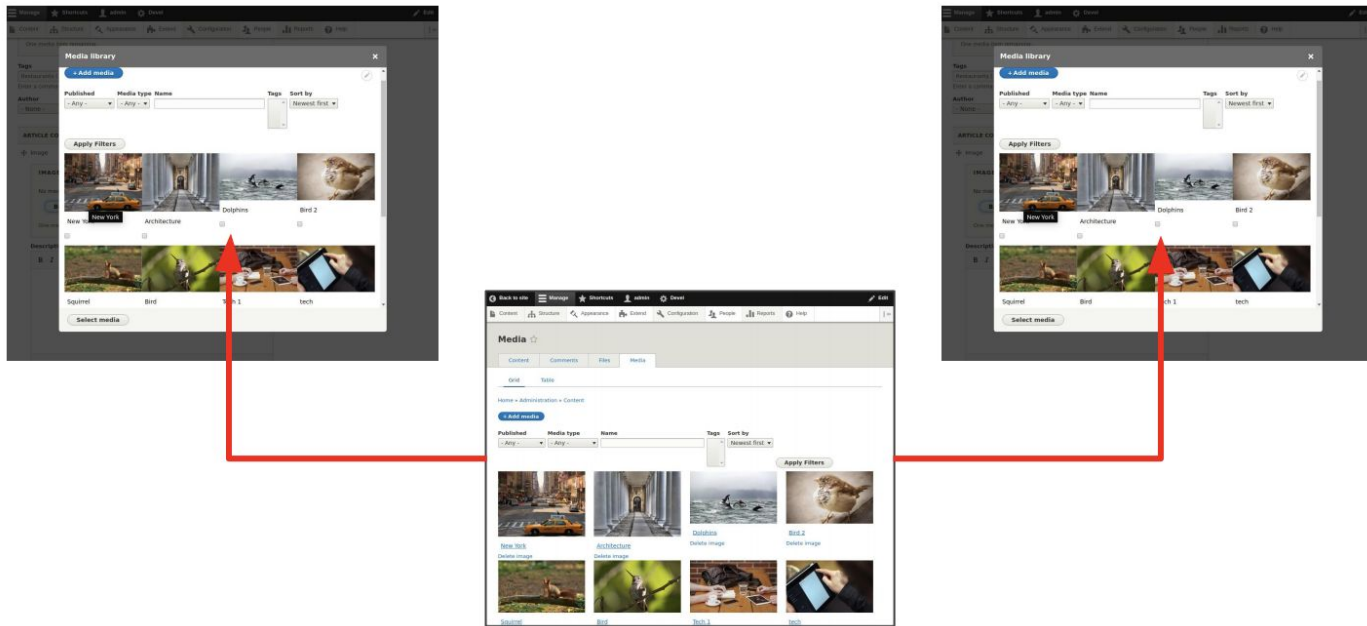


Denormalizing can:

- Enhance query performance.
- Make a database more convenient to manage
- Facilitate and accelerate reporting.

Reason #7: Unique Storage

Using non-standard storage for modeled data.



Example: https://www.drupal.org/project/external_entities

The background is a solid green color with a repeating pattern of various white line-art icons. These icons include smartphones, laptops, speech bubbles, lightbulbs, puzzle pieces, hands shaking, beakers, and books, representing themes of technology, communication, innovation, and collaboration.

Are you Excited?
Feel Empowered?
Ready to create Entities?



***Chuckles* I'm in danger.**

Reasons not to build a custom entity.

1. Steeper learning curve compared to other Drupal APIs.
2. Less likely contrib modules will work with custom entities.
3. Custom entities may not inherit future Drupal features.
4. Responsible for maintaining custom code - plenty of potential for technical debt.

Building with ECK Module

Demo



Generating with Drupal Console

Demo



Thank You!



Jim.Vomero@FourKitchens.com



@nJim

