Multi Tenancy to Completion

May 31, 2017

1 The Problem

FoxCommerce platform has been moving towards multi-tenancy and is almost there. There are a couple of remaining issues that need to be addressed for the system to be completely multi tenant.

2 What We Have

2.1 Organizations

We have a model of organizations which have roles and permissions and users. Organizations are associated with a specific scope. Scopes provide a way to organize data hierarchically and limit access.

2.1.1 Capabilities and Constraints

Organizations can...

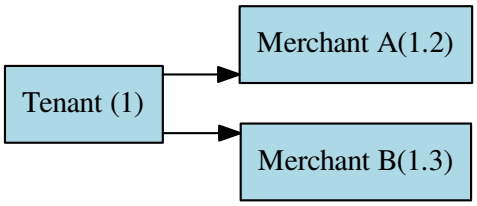
1. Control roles and permissions.
2. Control how a scope is accessed.
3. Have sub organizations that belong to subscopes.
4. Control subscopes.

Organizations cannot...

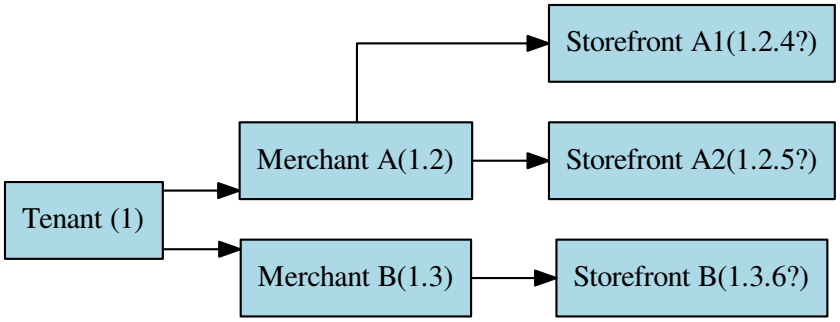
1. Cross sibling scopes.
2. Have unscoped data.
3. Users cannot log into multiple scopes at same time.

2.2 Scopes

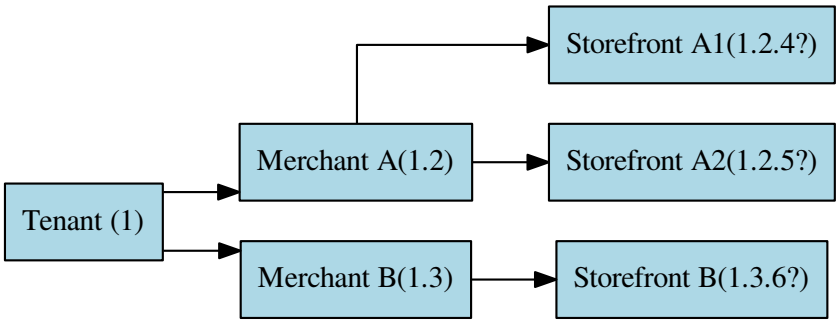
Almost all tables in the system have a scope column. Scopes are hierarchical organization of data like a filesystem tree. Users with access to a scope do not have access to the parent scope.



Each merchant may have one or more storefronts. The question of whether the data of those storefronts is scoped depends on the use cases we want to enable. Is a different organization managing the other store fronts? Then we probably want this



Is the same organization managing various storefronts? Then we want this.



Notice that the scope of the storefronts is the same. Regardless if we have one organization or another we need a different organizing structure for storefront data that is separate from scopes. We want a model of channels.

2.2.1 Capabilities and Constraints

Scopes can...

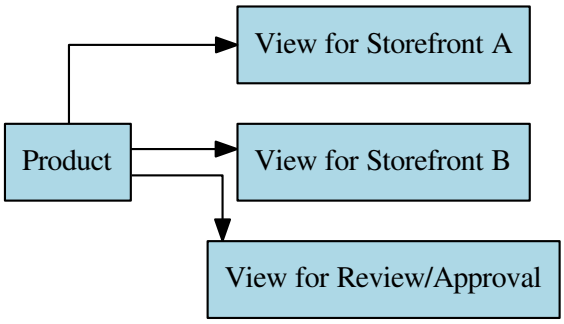
1. Group data like a directory in a filesystem.
2. Control access to data via roles/permissions that are in that scope.

Scopes cannot...

1. Share data with sibling scopes.
2. Provide semantic relationships between data in a scope.
3. Provide semantic relationships between data in different scopes.

2.3 Views (formally Context)

All merchandising information can have several views. Views provide a way to change the information of a product, sku, discount, or other merchandising data for a specific purpose. For example, each storefront could possibly have a different view of a product. A review/approval flow may have it's own view.



2.3.1 Capabilities and Constraints

Views can...

- Control which versions of data in the object store are displayed.
- Act as a git branch on the merchandising data.
- Commits provide branching history between views.

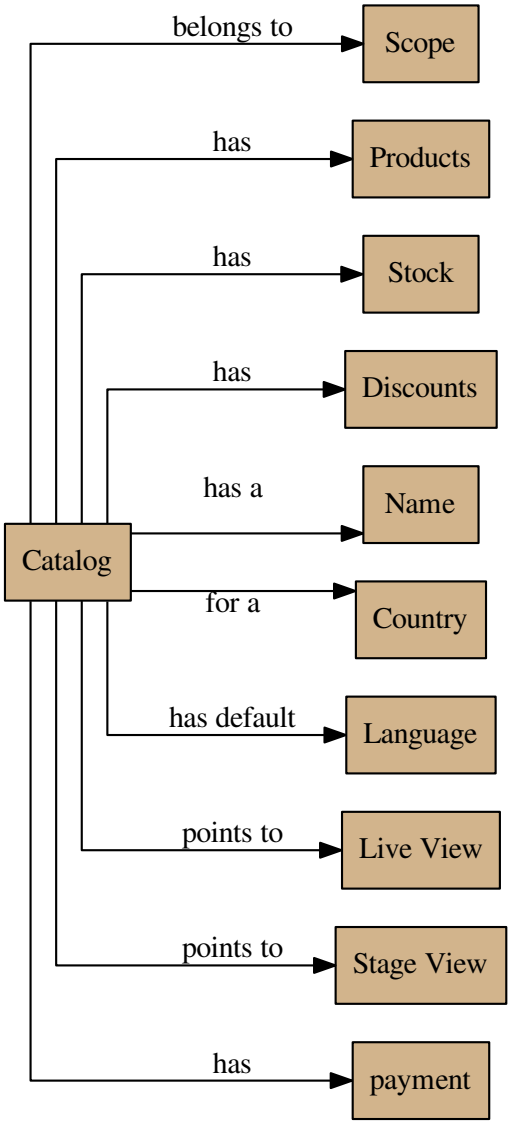
Views cannot...

- Control access to data.
- Shared between sibling scopes.
- Cannot control versions of parts of objects.
- Cannot describe semantic relationships between views.

3 What We Need

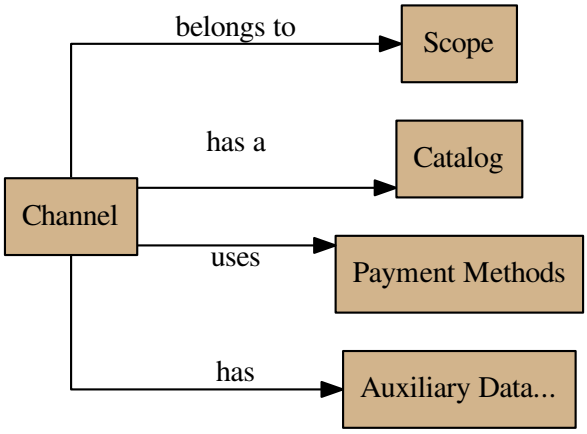
3.1 Catalogs

Catalogs are collections of products you want to sell.



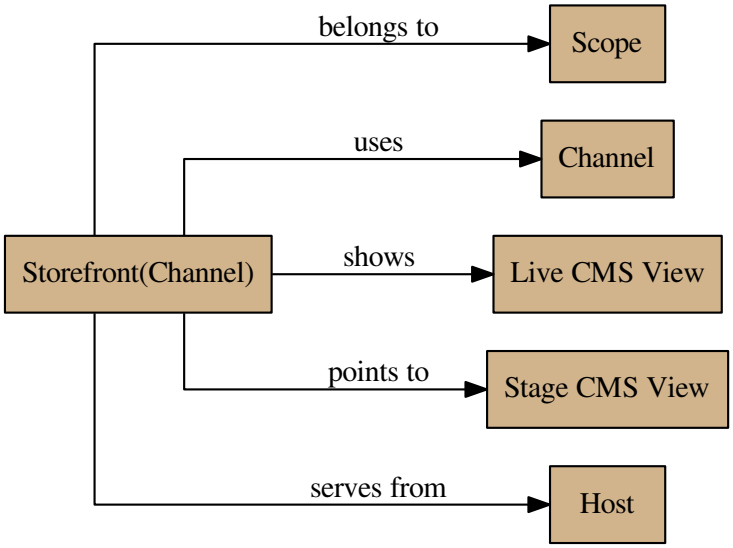
3.2 Channels

Channels should be comprised of three key components



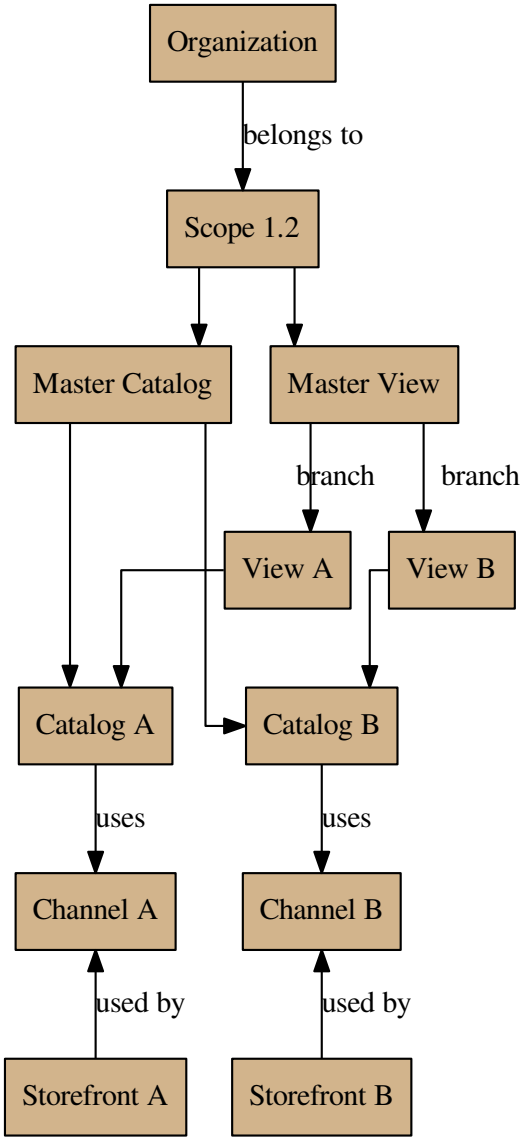
3.3 Storefronts

A storefront is a website that can sell products from a catalog. A storefront uses a channel in addition to data from the CMS.


belongs to
Scope
uses
Channel
Storefront(Channel)
shows
Live CMS View
points to
Stage CMS View
serves from
Host

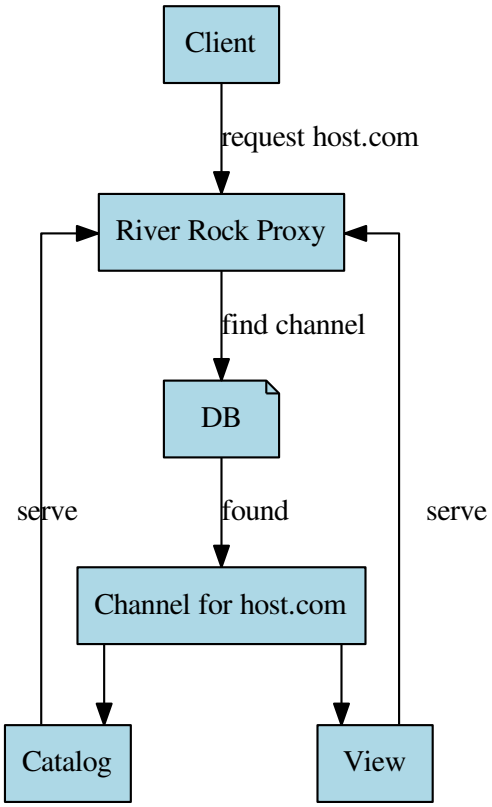
3.4 Back to Organizations

Once we have these new models we can assign them to organizations



3.5 Public Access

Our current public endpoints for searching the catalog, registering users, and viewing/purchasing products are not multi-tenant aware at the moment. We need to modify them to understand which channel they are serving.



3.6 Example Story

TODO: Give example of single merchant with multi storefronts