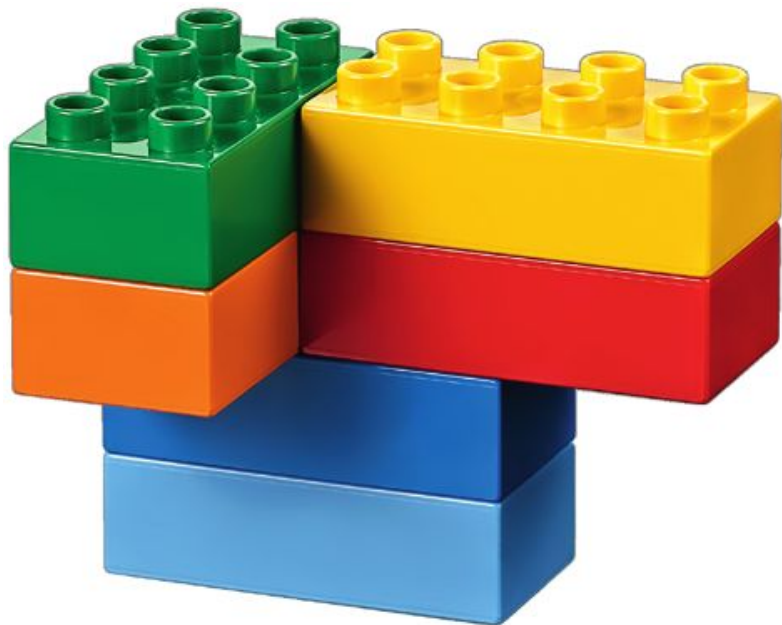
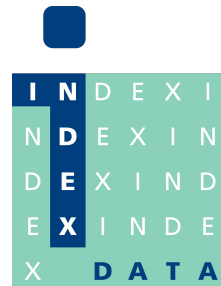


A case-study in FOLIO modularity: replacing mod-ldp with mod-reporting



Mike Taylor
Software Guy
Index Data
mike@indexdata.com



Where we're going

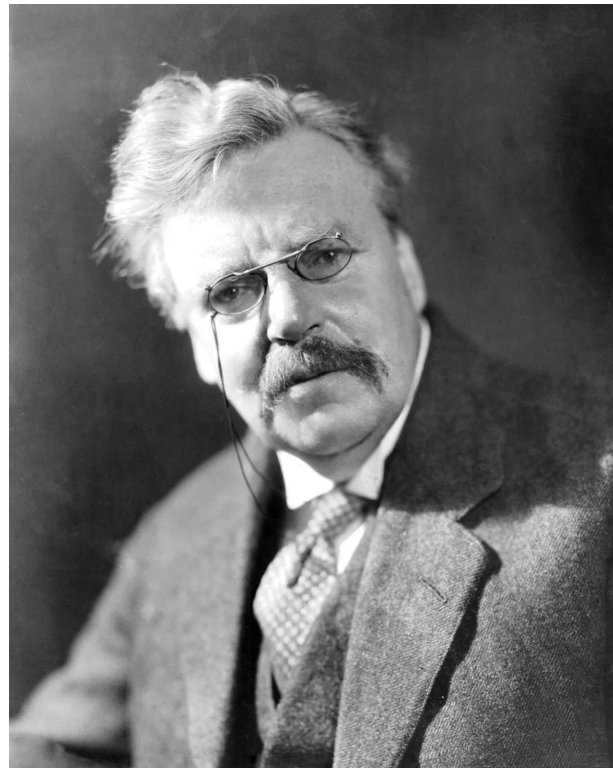
1. Philosophy
2. Modularity in FOLIO
3. Benefits of the modular architecture
4. An ecosystem of modules
5. Some light technical details
6. A case-study: mod-reporting
7. Implications

I. Philosophy

“I'm afraid I'm a practical man”, said the doctor with gruff humour, “and I don't bother much about [...] philosophy.”

“You'll never be a practical man till you do”, said Father Brown.

— G. K. Chesterton,
The Dagger with Wings.



I. Philosophy

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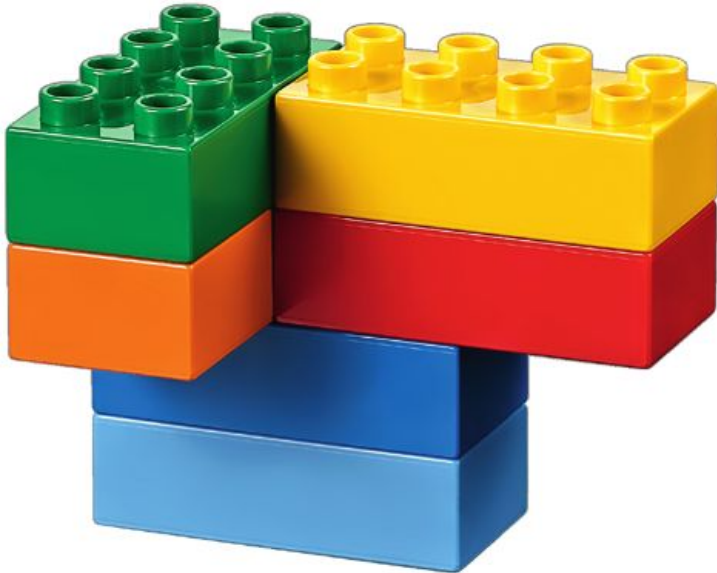
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- FOLIO belongs to the library community, not to a vendor.
- Any member of the community should be able to contribute.

No special access for insiders: we eat our own dogfood.

2. Modularity in FOLIO

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“Here is a thing we made”

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The heart of every FOLIO system is a platform consisting of:

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- Well-defined specifications for what a module is (discussed below)
- A handful of core modules to handle authentication and related concerns

This provides a context in which any module from any source can be deployed.

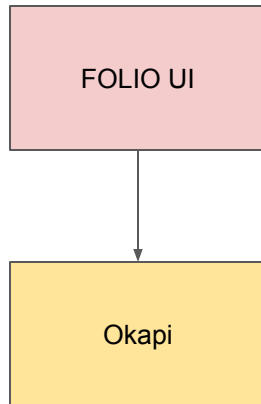
2. Modularity in FOLIO



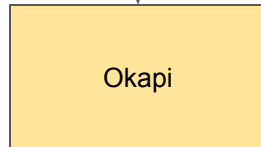
FOLIO UI

A diagram illustrating modularity in FOLIO. It consists of a single light red rectangular box with a thin black border, centered on the page. Inside the box, the text 'FOLIO UI' is written in a black, sans-serif font.

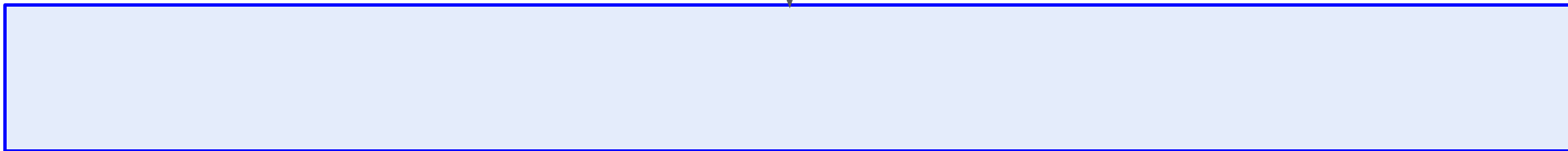
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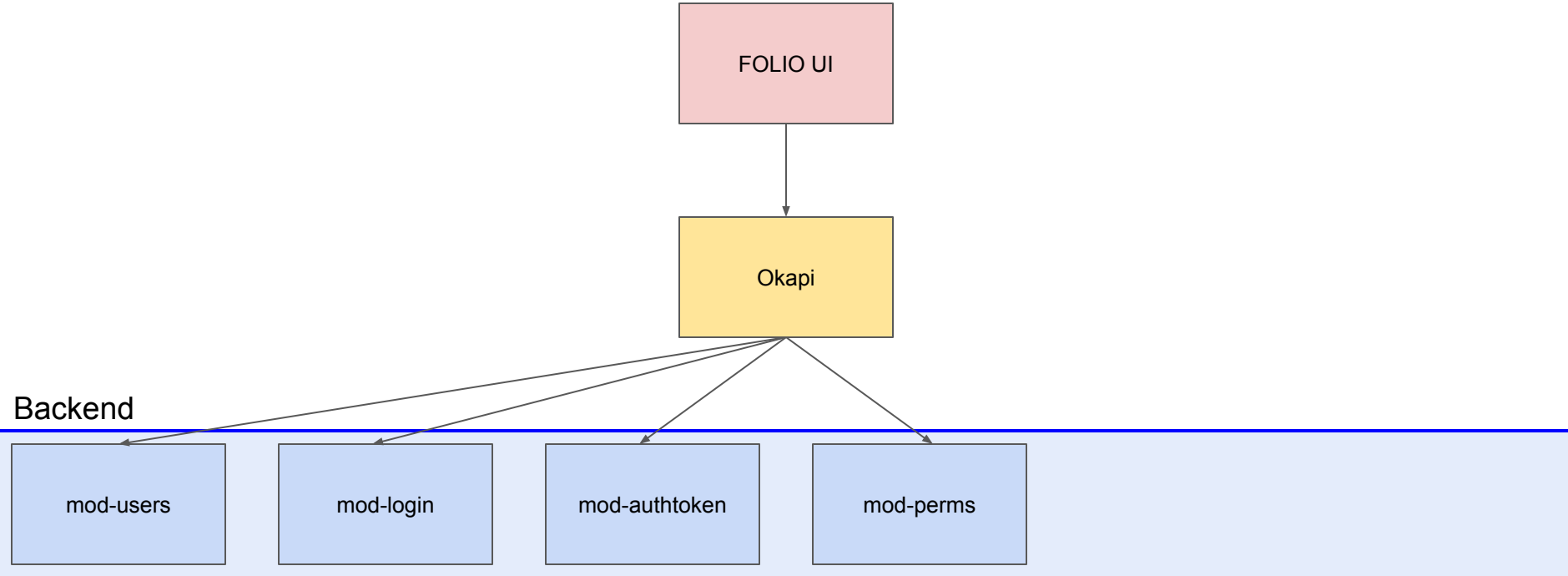
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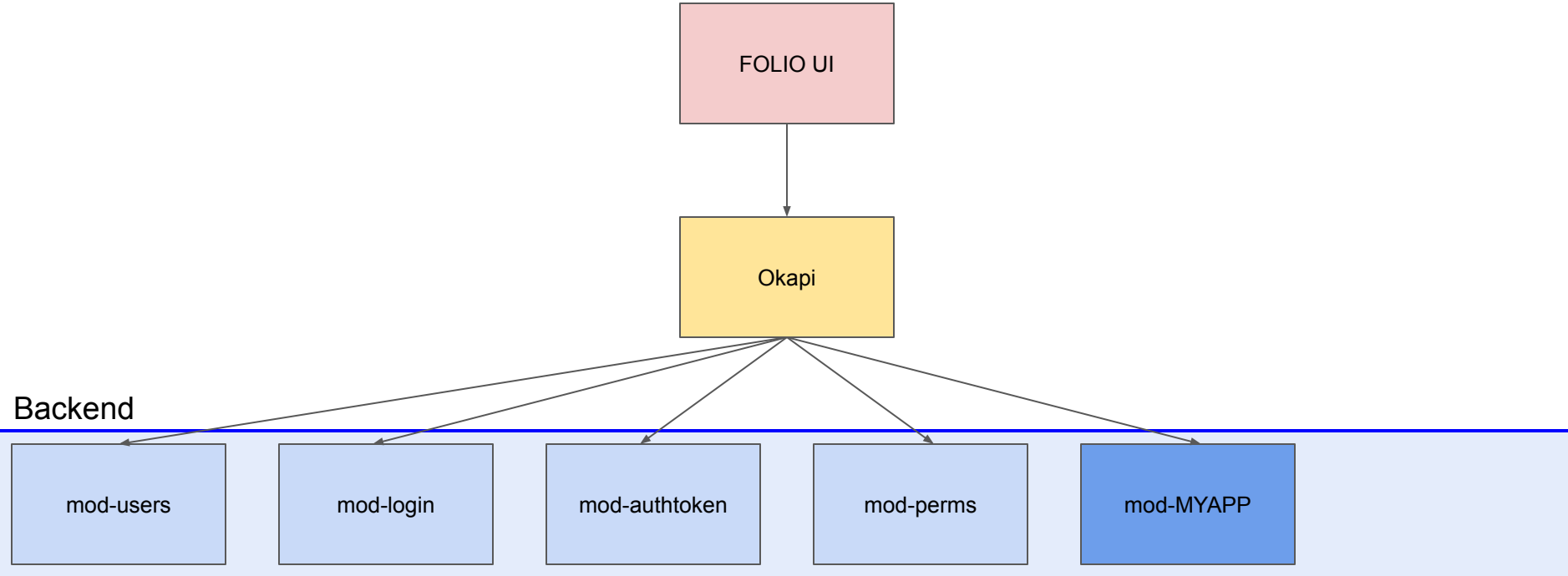
Backend



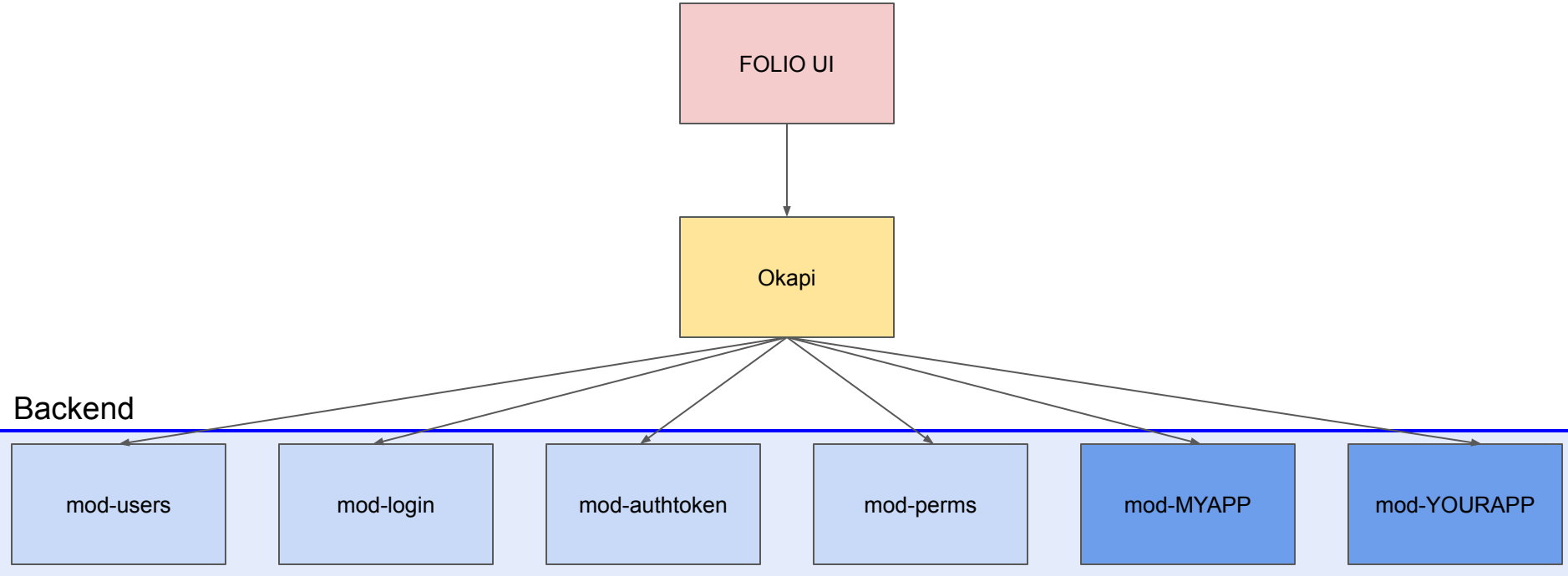
2. Modularity in FOLIO



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(The UI is also modular, but this talk is not concerned with that.)

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This vision of modularity is crucial to FOLIO's appeal to the library community, because it lowers the bar to participation:

- New functionality can be added as a module
- Individual libraries may create modules that meet their needs
 - Or hire developers to do so
 - Or crowdfund development of widely needed modules
- Different libraries can deploy different sets of modules, lowering operating costs.

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There's one-one to say “no”.



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(At least in principle.)



4. An ecosystem of modules

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And make it available for other FOLIO libraries to use.

This is exactly what happened with Course Reserves:

- Needed by FLO, the Fenway Library Organization in Boston.
- Developed by Index Data with their funding
- Now used by almost all US Academic libraries

4. An ecosystem of modules

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The first modules (mod-users and mod-inventory) came in 2016.

Eight years on, it has grown to 114 back-end modules (as of the current snapshot build).

SIDEBAR

How are modules made available to the community?

How can libraries know to trust them?

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How can libraries know to trust them?

This is more of an organizational problem than technical one.

We can talk more about it in the Q&A if there is interest.

5. Some light technical details

A FOLIO module is a computer program that fulfils certain requirements.

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It can be written in any language (though most are in Java).

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- It must respond to WSAPI requests.
- WSAPIs are typically RESTful and use JSON payloads.
- It must provide a machine-readable description of the requests it accepts and the responses it can give.

5. Some light technical details

A module's description must specify:

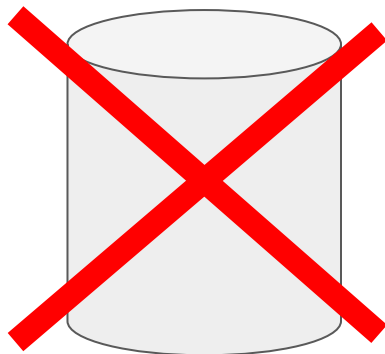
- What interfaces the module requires
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All communication between modules is via these interfaces:
there is no shared database.



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A module's description must specify:

- What interfaces the module requires
- What interfaces it provides.

All dependencies are on *interfaces*.

Not on modules
(which are implementations).



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An example interface description (from mod-ldap):

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{
  "id" : "ldap-query",
  "version" : "1.2",
  "handlers": [
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Consumers of an interface neither know nor care what module implements it. (And vice versa.)

Multiple modules can provide alternative implementations of the same interface.

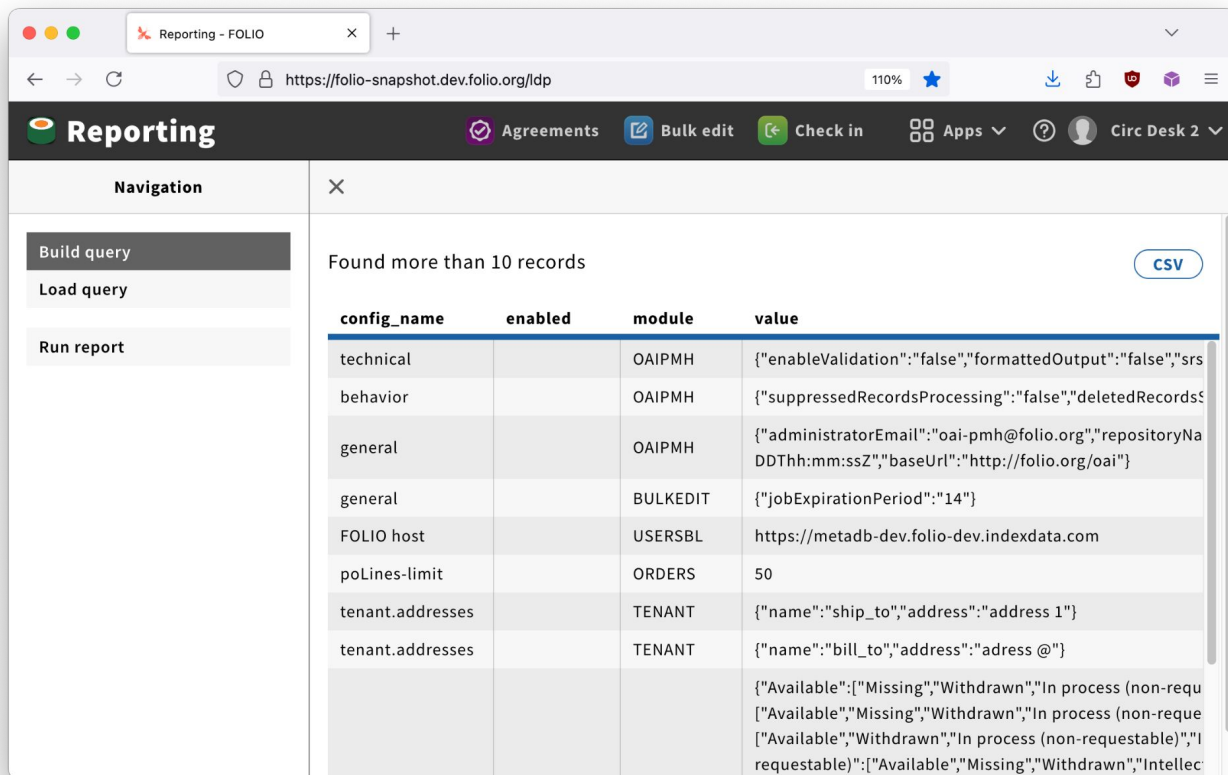
6.A case-study: mod-reporting

The screenshot displays the 'Reporting - FOLIO' web application interface. The browser's address bar shows the URL 'https://folio-snapshot.dev.folio.org/ldp'. The application header includes a 'Reporting' logo and navigation links for 'Agreements', 'Bulk edit', 'Check in', 'Apps', and 'Circ Desk 2'. A left-hand navigation menu contains 'Build query' (highlighted), 'Load query', and 'Run report'. The main content area is configured with the following settings:

- Schema:** folio_configuration
- Table:** config_data__t
- Filter by column:** enabled, with a filter value of true.
- Show columns:** module, enabled, config_name, value.
- Order by column:** (No criteria selected).
- Limit number of results:** 10.

A 'Submit' button is located at the bottom of the configuration panel.

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config_name	enabled	module	value
technical		OAIPMH	{"enableValidation": "false", "formattedOutput": "false", "srs": "application/javascript"}
behavior		OAIPMH	{"suppressedRecordsProcessing": "false", "deletedRecords": 1000000}
general		OAIPMH	{"administratorEmail": "oai-pmh@folio.org", "repositoryName": "FOLIO", "DDThh:mm:ssZ": "mm:ssZ", "baseUrl": "http://folio.org/oai"}
general		BULKEDIT	{"jobExpirationPeriod": "14"}
FOLIO host		USERSBL	https://metadb-dev.folio-dev.indexdata.com
poLines-limit		ORDERS	50
tenant.addresses		TENANT	{"name": "ship_to", "address": "address 1"}
tenant.addresses		TENANT	{"name": "bill_to", "address": "address @"}
			{"Available": ["Missing", "Withdrawn", "In process (non-requestable)", "Available", "Missing", "Withdrawn", "In process (non-requestable)", "Available", "Withdrawn", "In process (non-requestable)", "Available", "Missing", "Withdrawn", "Intellectual Property"]}

6.A case-study: mod-reporting

FOLIO's Reporting app allows users to search in Metadb.

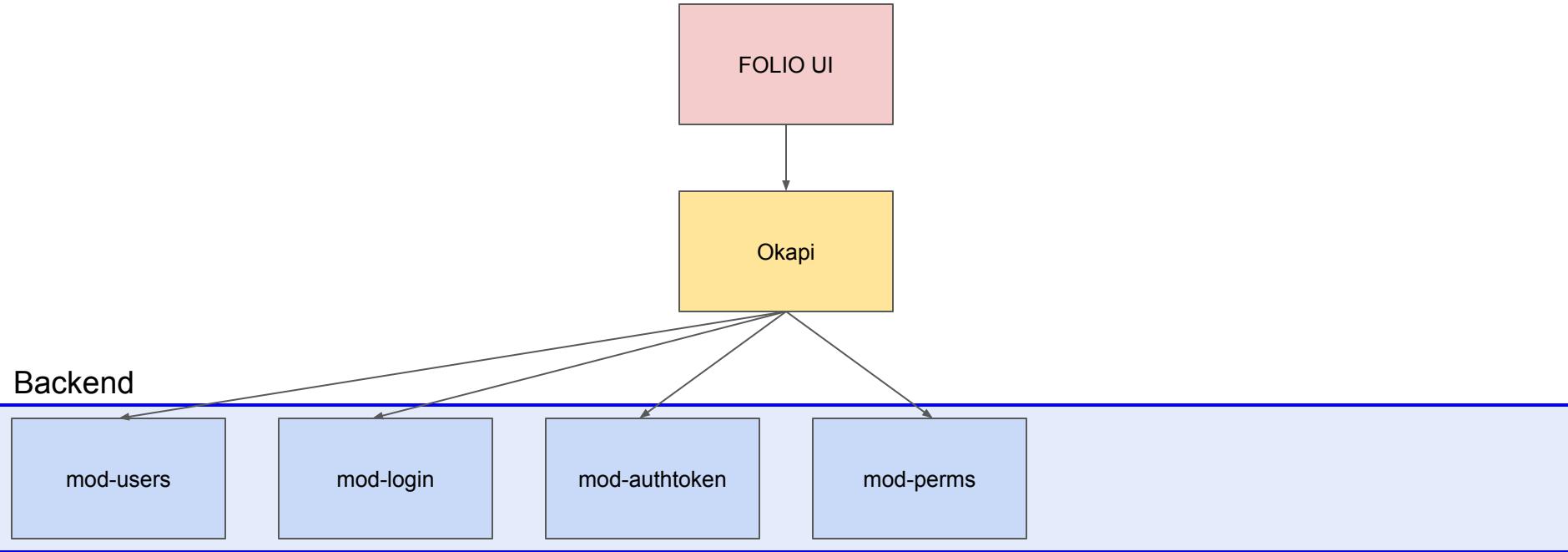
This is a relational database that contains normalized records harvested from FOLIO.

They are continually updated as they change, and history is maintained.

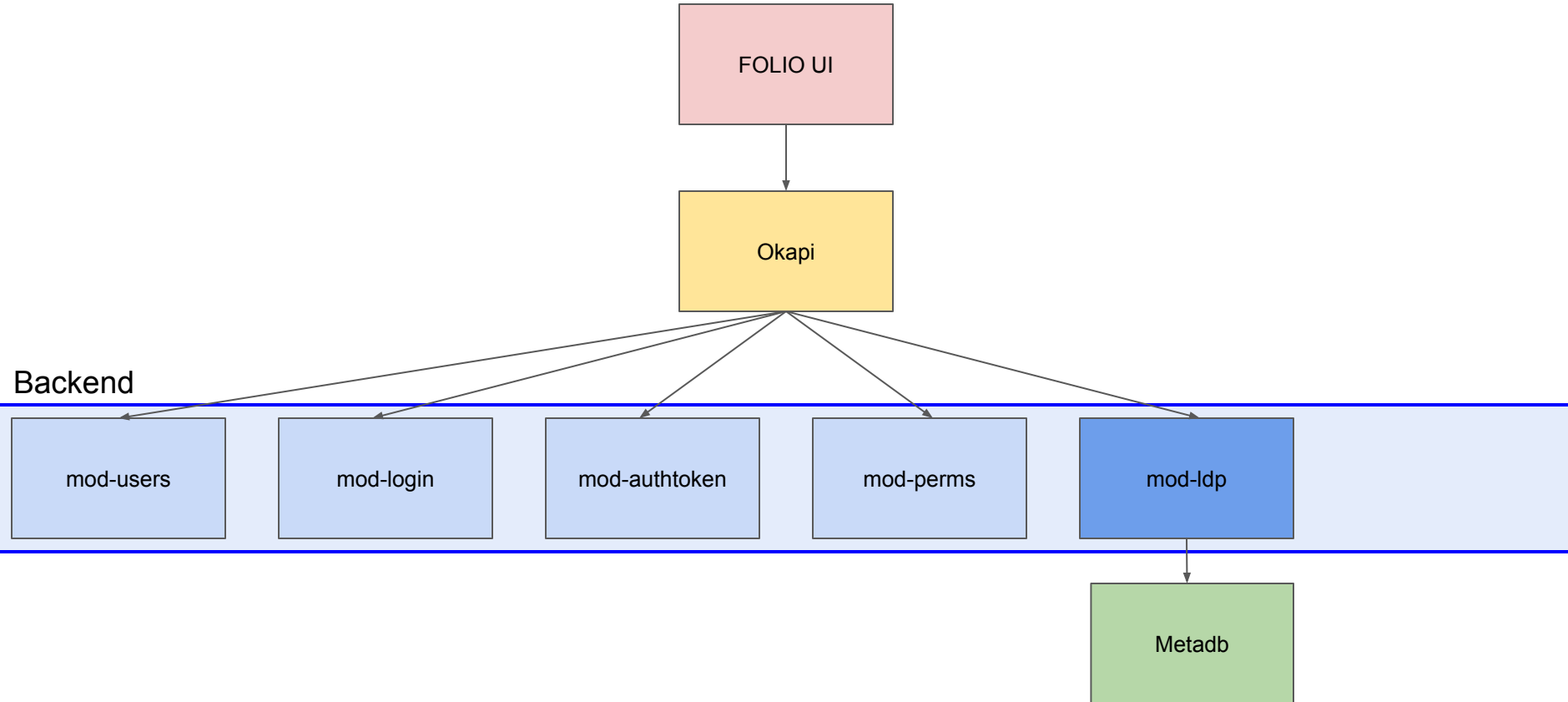
6.A case-study: mod-reporting

Apart from the UI component, the app is implemented by a back-end module (mod-ldp) which communicates on the UI's behalf with Metadb.

6. A case-study: mod-reporting



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mod-ldp is ... not great:

- old code
- written by a third party
- using tools alien to its maintainers
- tenant separation is questionable
- insecure in places
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6.A case-study: mod-reporting

mod-ldp is ... not great:

- old code
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Rather than fix it, we decided to replace mod-ldp with a new module, mod-reporting, written in Go.

6. A case-study: mod-reporting

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Settings - FOLIO

https://folio-snapshot.dev.folio.org/settings/about

Settings

AgreementsBulk editCheck inAppsCirc Desk 2

Settings

integration

INN-ReachInventoryInvoicesLicensesLocal KB adminMARC authorityMy profileNotesOAI-PMHOpen accessOrdersOrganizations

Software versions

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- quickMARC (mod-quick-marc-5.2.0-SNAPSHOT.291)
- Manage reading room and its related access (mod-reading-room-1.0.0-SNAPSHOT.21)
- Record Specifications (mod-record-specifications-1.0.0-SNAPSHOT.59)
- Remote storage API module (mod-remote-storage-3.2.1-SNAPSHOT.206)
- reporting module (mod-reporting-1.1.0-SNAPSHOT.103)
- Folio mod-requests-mediated module (mod-requests-mediated-1.0.0-SNAPSHOT.17)
- Real Time Availability Check Module (mod-rtac-3.8.0-SNAPSHOT.98)
- Search Module (mod-search-3.3.0-SNAPSHOT.596)
- Mod sender (mod-sender-1.12.1-SNAPSHOT.50)
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7. Implications

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It provides a pathway for piecewise refreshment of parts of FOLIO as they age out.

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For example:

- A plug-compatible mod-users alternative that uses LDAP as the source of truth
- A plug-compatible mod-fqm-manager replacement that runs queries against MetaDB

7. Implications

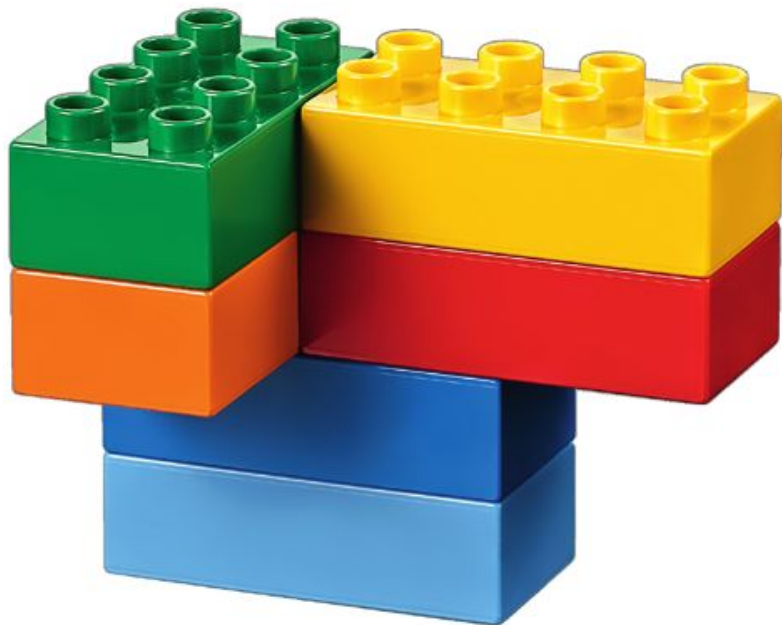
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**Modularity
is
empowering!**

A case-study in FOLIO modularity: replacing mod-ldp with mod-reporting



Mike Taylor
Software Guy
Index Data
mike@indexdata.com

