APPLICATION DEVELOPMENT
FOR DOMINO 10 AND 11

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DIGITAL SOLUTIONS

HCL

AGENDA

Business cases

Review of Domino 10.0.1 and AppDev Pack 1.0.0

Release cadence going forward

Futures

      DQL

      Lotusscript

      domino-db and OAuth

"What this means" slides throughout

| NOT ON THE AGENDA

XPages – talk to HCL/IBM OM (Manby/Rosen)

Non-OAuth security topics

Nomad

THE 2 BIG BUSINESS CASES

Domino "veterans"

Leverage your investment, move it new platforms and configurations

Enable new technologies to access and operate productively with existing Domino data and practices

Newcomers – or returned exiles

Provide competitive, compelling solutions to solve business problems for less

With real technology, demonstrate the valuable transition of low code/no code to production-ready applications

DOMINO 10.0.1 LOTUSSCRIPT/JAVA FEATURES

- (Notes)DominoQuery class – DQL support from Lotusscript/Java
  - parse, explain, execute queries
  - (re)setNamedVariable – to address SQL Insertion security exposure
- (Notes)HTTPRequest – REST support from the Domino backend
- NotesJSON* – (Lotusscript only) to process JSON payloads
- (Notes)ViewEntryCollection intersect and remove maintainOrder argument for sorted results

10.0.1 DEMO
JAVA DOMINOQUERY
WITH SUBSTITUTION VARIABLES

DOMINO 10.0.1 APPDEV FEATURES

- Domino Query Language (DQL)
  - Terse, easy-to-understand syntax for low-code development
  - Document and view entry scanning and view set retrieval
  - AND/OR/NOT with precedence
  - Powerful IN view operator
  - ALL operator for IN clause to perform implicit AND
  - Much more

DEMO - DQLEXPLORER

PROMOTING OPENNTF/GIT/OPEN SOURCE

▶ ANYONE can contribute

- Bug fixes

- Enhancements

- Forking – copying and changing

▶ EVERYONE benefits

- We NEED to show the power of Domino

▶ Self-policing – every project has a owner/curator

- Support concerns, defects are a community thing

APPDEV PACK

Appdev pack 1.0.0 (2018 Q4 release)

Proton/domino-db

- Linux support

- CRUD document operations

- Integral DQL support

- Functional ID with client certificate authentication with SSL

- Document encryption (functional ID)

- Beta version of OAuth service for calendar and free/busy support

| **APPDEV PACK 1.0.0 DOMINO-DB API**

domino-db npm module for node.js

- 4 classes, 21 functions

- DominoDB class

  - useServer

- Server class

  - useDatabase, getHostName, getConnection

- Database class

- useDocument, createDocument, bulkCreateDocuments, bulkReadDocuments, bulkReadDocumentsByUnid, bulkDeleteDocuments, bulkDeleteDocumentsByUnid, bulkDeleteItems, bulkDeleteItemsByUnid, bulkReplaceItems, bulkReplaceItemsByUnid, bulkReplaceDocumentsByUnid, explainQuery, getServer, getFilePath,

- Document class

  - getDatabase, getUnid, read (document), replaceItems, delete, deleteItems

10.0.1 DEMOS
DQL AND DOMINO-DB
REPLACING A VALUE
ACROSS A DOCUMENT SET (DEMO7A AND DEMO7B)

RELEASE DELIVERY CADENCE

Domino – including DQL and Java/Lotusscript

- V10, V11, etc. will proceed as always

- **Core Domino features required for the Appdev pack will be released in fix packs**

Appdev Pack – including domino-db, Proton and IAM/OAuth 2

- Released in ~quarterly drops

- Naming - v1.0.1 is the 2019 Q1 release, v1.0.2 for Q2 etc.

RELEASE DELIVERY – WHAT THIS MEANS

How can HCL do this?

- Improved Agile/CI/CD practices (which you can use as well)

- Independent but dependent internal streams and processes

Feature (and fixes) pipeline is MUCH more fluid and faster

- Eisenhower: "Plans are useless, but planning is indispensable." - product plans can (and SHOULD) change

- Decreased wait time – increased rate of adoption and feedback

- Required core Domino Features will require server upgrades (!)

FUTURES

DQL SHORT TERM FEATURES

V11 features planned

Inboard Design Catalog (coding/testing complete)

- Using ghost notes in the application database
- Enables replication
- Honors view security (secure views had been eliminated)
- "Show ..." console command for dumping contents

Expanded Formula Language support

Sorted results – (for domino-db) single DB

Performance enhancements (saved results, view ops, etc.)

DQL SHORT TERM – WHAT THIS MEANS

Inboard Design Catalog

- GQFDsgn.cat is GOING AWAY – do NOT write code you expect to last
- "Show database designcat" (say) – output format TBD
- Design Catalog is by-database – you choose what databases use DQL

Expanded Formula Language support/exposure – details TBD (ideas?)

Sorted results – view-based, already in Lotusscript/Java (10.0.1)

Performance enhancements

- Document security and performance (options discussed at Deep Dive)

DQL SHORT TERM FEATURES (CONTINUED)

V11 features planned (continued)

CONTAINS operator

Body contains all ('standard issue', 'noteb??k*')

Contains ('Cincinnati', 'Gelsen?irchen' 'D?sseldorf', 'geeks')

- Performs database-level Full Text Search – finds terms embedded in text
- Uses the optional DQL **all** keyword to AND the members in the set
- Any field in the database can be searched (or the whole database)
- You MUST have a FT Index on the database
- Supports wildcard (*, ?)
- NOT the same as field = value (!)

DQL CONTAINS – WHAT THIS MEANS

CONTAINS operator

- Full text option availability –

    - Accent/Case sensitivity

    - Stemming/word variants/fuzzy

- NO ranking – incompatible with DQL Boolean semantics

- Optional automatic FT refresh – at some cost

- ANDed terms consolidated (this will be ONE FT query):

contains all ('past name creation bound', 'bal*') and text1 contains all ('ba*','p?s*') and contains ('balance')

- Actually CONTAINS **CAN BE** the same as "="

    - Small field, and you specify whole field values (as discussed at the Deep Dive)

DEMO (8)
DQL CONTAINS OPERATOR

DQL MEDIUM-LONG TERM

Publish/subscribe search solution support

Multi-database queries

- One query, federated across multiple databases
        MUST share fields in the query
- Complete DQL syntax support (including new CONTAINS operator)
- Needs new container in domino-db AND Java/Lotusscript - DatabaseCollection
- Collated summary-style results
  - Multi-db results are also a new programming construct

DQL MEDIUM-LONG TERM – WHAT THIS MEANS

Publish/subscribe (aka Open Domino) – plans not firm

- Elasticsearch APIs need lockdown

- Query syntax/semantics different – DQL dialect variants

Multi-database queries

- No JOINs (yet); no cross-database query terms

- Sorting will consume resources linearly to result set size

- Design still TBD – want ideas/requirements

BACKEND CLASSES (JAVA/LOTUSSCRIPT)

JSONBuilder class

Tablet support

- Geolocation API

- Lotusscript structures for ordered/key-based access to in-memory data

Lotusscript list support (for quick search and traversal)

APPDEV PACK 1.0.1 (Q1 2019 RELEASE)

Proton/domino-db

- Windows support (had been Linux only)

- Compute with form (update and read)

  - Display-only fields available for read

- $REF support (not DQL (yet)) – update and read

- Node.js 10 supported (Node.js 8 support deprecated)

- Improved session behavior (performance with IDVault)

- And more! (see documentation)

OAUTH2 SOLUTION – WHY OAUTH?

What is Open Authorization (OAuth) ?

A pattern of processing and componentry enabling the delegated, scoped access to resources by an **application** on behalf of a **user**

Industry-standard lightweight security protocol

Access is

time-limited

scoped

Access can be revoked

APPLICATIONS ON DOMINO - TODAY

▸ Power and ease of a consolidated system

- ▪ Application code is (for the most part) resident in Domino server

▸ Well protected by Domino security mechanisms

- Notes ID file
- Database ACL
- Document security (reader and author lists)
- Domino users, groups, domains, and roles
- Session Management...

} NOT GOING AWAY

DIGITAL SOLUTIONS

HCL
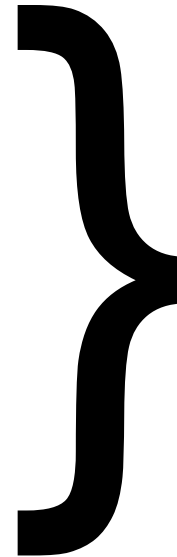
OAUTH2 SOLUTION – AUTHENTICATION/AUTHORIZATION

Identity and Access Management (IAM)
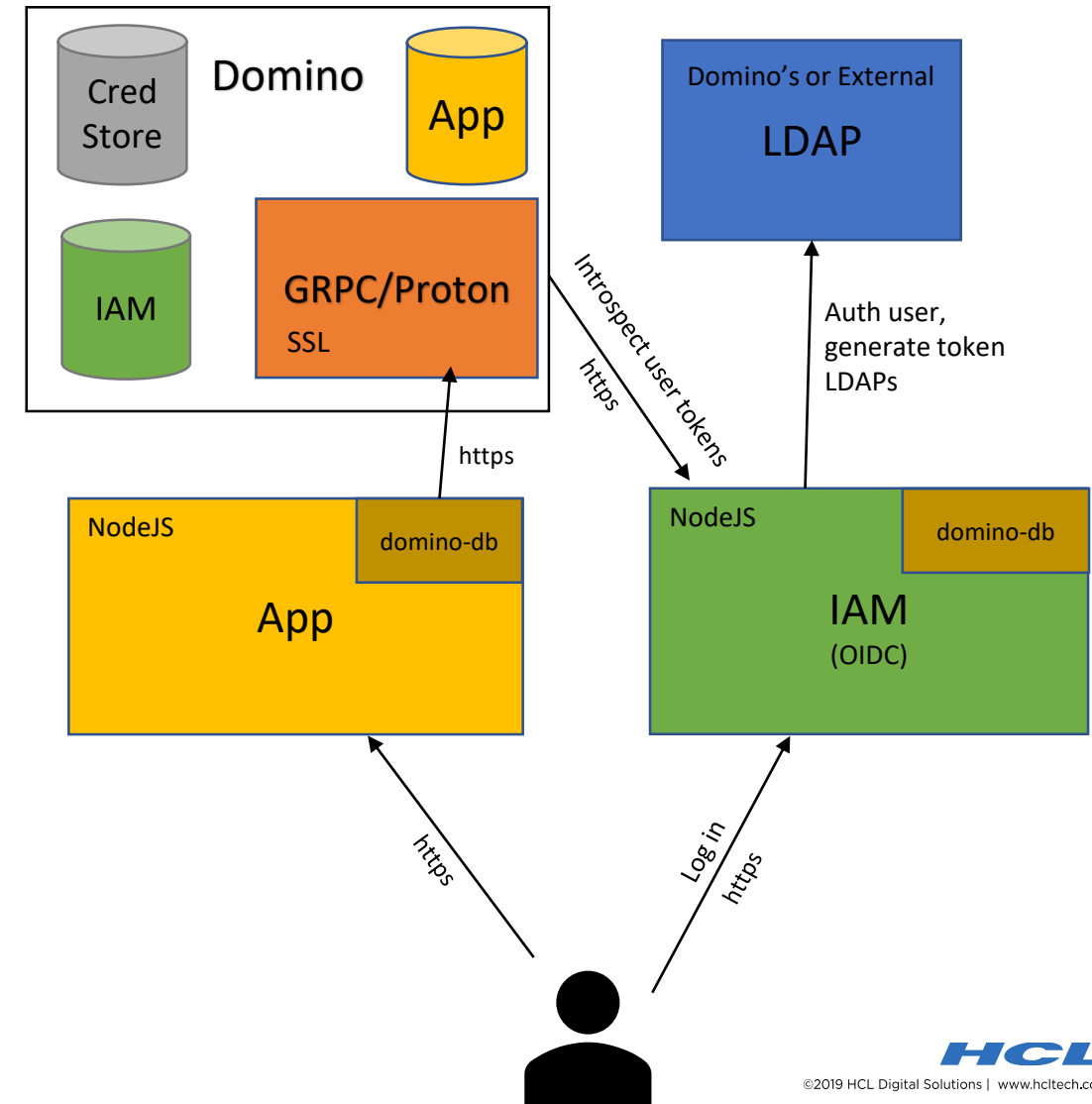Node.js application (!) handles authentication and authorization

- IAM uses Domino as its data store using domino-db module calls

LDAP provider can be Domino or other

Application requests authorization to use user's data

- IAM acquires identification from LDAP, returns a token

Application can use access token to access Calender and Freebusy APIs

SCOPES IN ACTION AND FUTURE SCOPES

▸ Secure your API server with your custom scopes

- Provide custom Access control to your APIs

▸ As a developer of API server, you can

- Decide the access levels of your APIs.
- Define these access levels as **custom scopes.**
- Register the custom scopes in **IAM**

▸ Some common/public examples for (near) future scoping APIs:

- Mail/Calendar/Contact
- Teamroom/Discussion DB
- Personal Notebook
- Your workflow logic APIs

APPDEV PACK 1.0.1 (Q1 2019 RELEASE – ANY DAY)

- IAM support (for OAuth 2.0)

  - No longer pre-release – official release

  - Simplified setup – wizard-driven

  - Performance improvements over pre-release

  - Pilot-mode – developer quick install with default options

  - Implicit authentication flow – better CORS management to come in Domino 11 (same – origin policy override)

  - DSAPI filter for Calendar/Freebusy

APPDEV PACK SHORT TERM FUTURE

- domino-db API

  - Sorted results (with DQL)

  - Streaming large results (alternative to paging)

  - Close gap between Java/Lotusscript and domino-db

    - Names, Readers and Authors field support

    - Look up names in the server directory

    - Read and update a database ACL

    - Add query results to a folder

APPDEV PACK SHORT TERM FUTURE

- OAuth
  - OAuth 2.0 support for Proton and domino-db (allow apps to be OAuth resource providers)
  - Support your Domino APIs (XPages OSGi)
  - Registration of custom APIs to define OAuth scopes
  - High Availability/Fault-tolerant IAM

APPDEV PACK MEDIUM-TO-LONG TERM FUTURES

- Attachments, folders and views, rich text/MIME support, signing …
- Design operations – create and delete design elements
- Admin operations – (e.g. User registration, ACL management, adminp task management)
- domino-db open source, allow plug-in extensions
- Structure Data Object (full JSON) support
- Document encryption with OAuth credentials
- domino-db Java API

Relationship™
BEYOND THE CONTRACT

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