

# VAMDC

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<http://www.vamdc.eu>

## Level 2 Service Implementation

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**on behalf of The VAMDC Consortium**



# The VAMDC Service Challenge

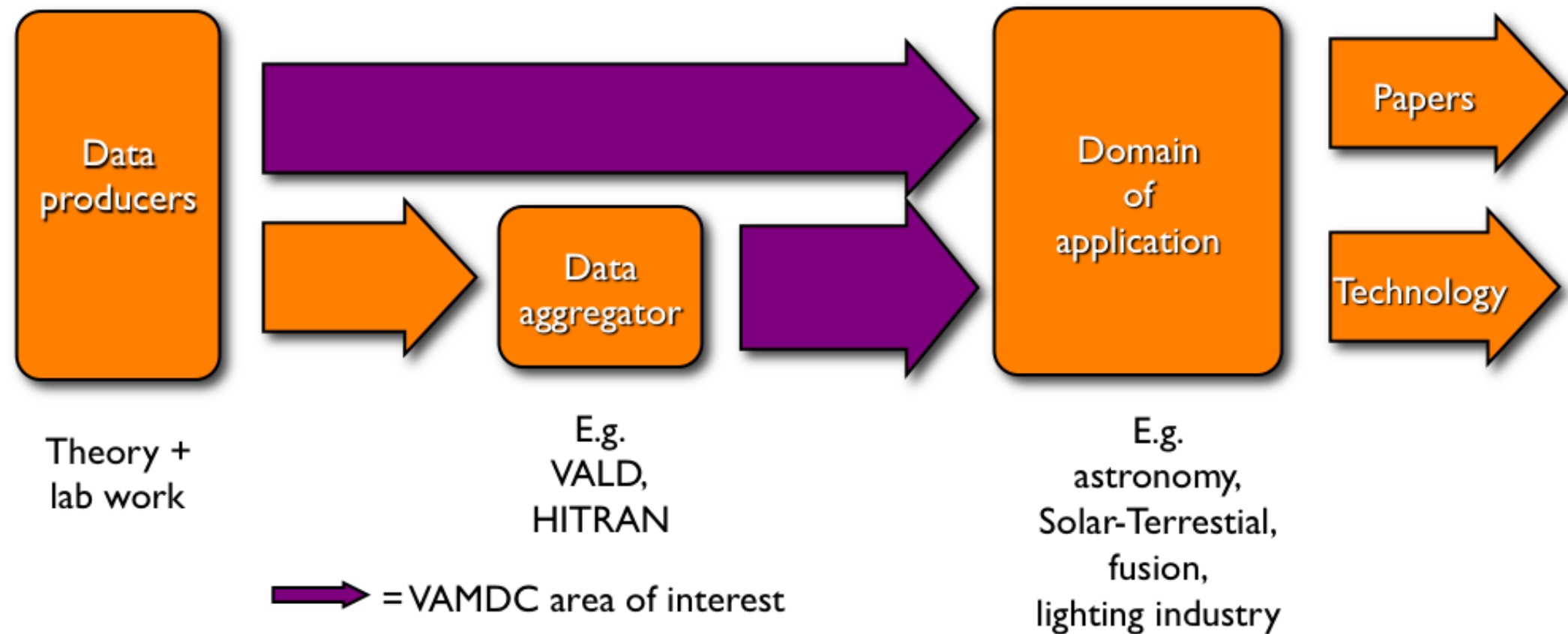
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- A&M data underpins many areas of research
  - Providing access to a wide range of users (astronomy, nuclear, climatology, biology) in academia and industry
- Data is complex and increasingly large
- Handling of data (often) involves use of applications
- Issues with ensuring data completeness & quality
- Coordination and standards – organising the A&M community

**Challenge:** provide data access to **all** A&M data to **all** end user communities

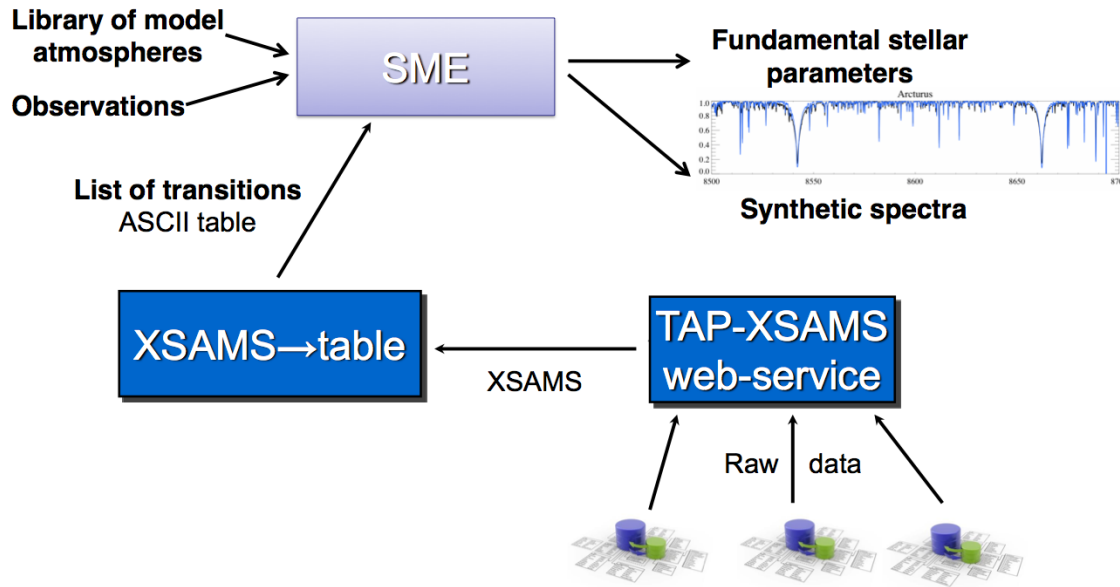
# ... translated ...

“We make it easier to publish and to use A&M data”

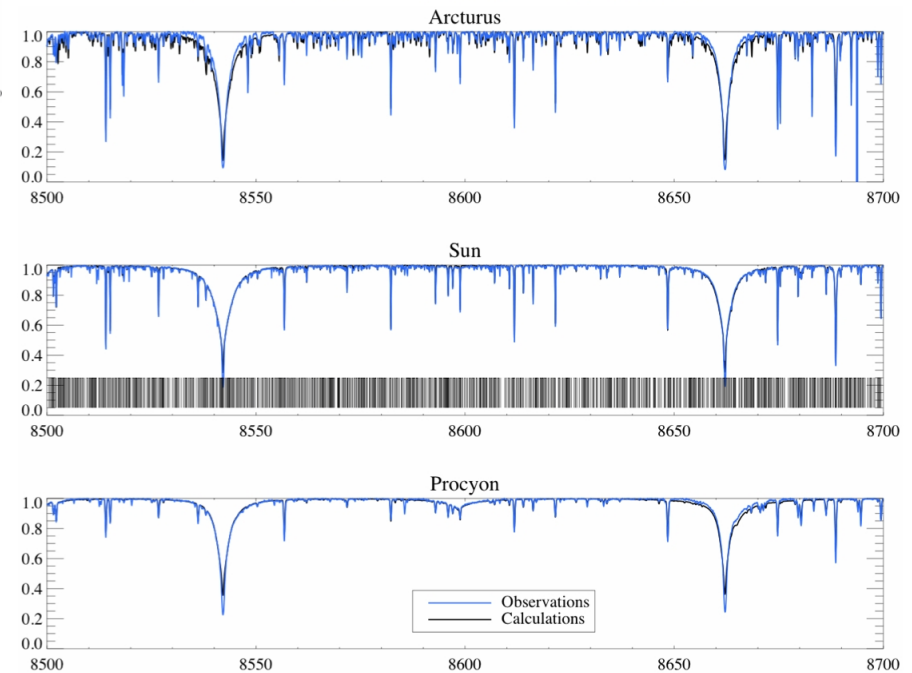


# Science Example

## Demo3: VAMDC for user application (SME)



## Demo 3: results



# The Service Release Philosophy

**develop – deploy – feedback – develop ...**

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- Level 1: Preliminary VAMDC service with simple data access to the core VAMDC data resources
- Level 2: Enhanced interoperable data access to VAMDC data resources, all resources accessible
- Level 3: Interoperable VAMDC data access with VAMDC tools available (client side or server side accessible via through workflow enactment engines)
- VAMDC Service: Final full service, including access to resources from the wider community (through the SA1 / Task 6 community call).

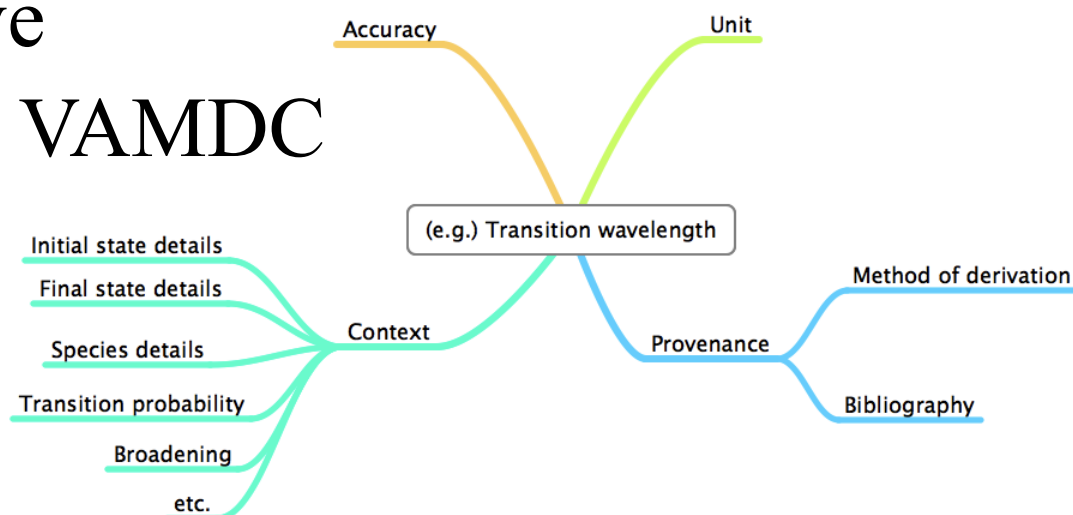
# Baseline Service Capabilities

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- 2011: Level Two Service Release described at:
  - <http://voparis-twiki.obspm.fr/twiki/bin/view/VAMDC/Na2T5>
- Complete range of VAMDC data sets accessible
  - BASECOL, CHIANTI, HITRAN, VALD
- Simple data service interface
  - XSAMS interface
  - Ability to convert output format at client
- Rich query interface – e.g. atoms, molecules, transitions, collisions, free form
- Demonstrates distributed data access as data held across a range of VAMDC data centres

# Interoperability

- Common data model – XSAMS
- XML Schema for Atoms Molecules and Solids
  - Quantum states, radiative transitions, collisional processes, etc.: broad range of A&M data
  - Easily transformed into other formats
- Original IAEA initiative
  - Development now at VAMDC



# VAMDC Standards

<http://vamdc.org/documents/standards/>

[VAMDC home](#) | [standards documentation](#) »

[next](#) | [index](#)

## Documenting VAMDC standards

On the pages listed below you will find the specifications of standards currently used by the VAMDC. The next official release of standards is scheduled for July 2011.

### Data access protocol, query language and dictionaries

- [Data access protocol \[v 11.05\] \[r 11.05\]](#)
- [Query language \[v 11.05\] \[r 11.05\]](#)
- [Dictionaries \[v 11.05\] \[r 11.05\]](#)

### Data model

- [VAMDC-XSAMS reference guide \[v 0.2\] \[r 11.05\]](#)
- [VAMDC-XSAMS changelog \[v 0.2\] \[r 11.05\]](#)
- VAMDC-XSAMS schema files are available for download below.
- VAMDC-XSAMS schema documentation can be [viewed](#) in the browser or downloaded from below.
- Case-By-Case schema documentation can be [viewed](#) in the browser or downloaded from below.

### Registry

- [Registry user's guide \[v 11.05\] \[r 11.05\]](#)

#### Table Of Contents

#### Documenting VAMDC standards

- [Data access protocol, query language and dictionaries](#)
- [Data model](#)
- [Registry](#)
- [Downloads](#)
- [Changelog](#)

#### Next topic

[Data access protocol \[v 11.05\] \[r 11.05\]](#)

#### Quick search

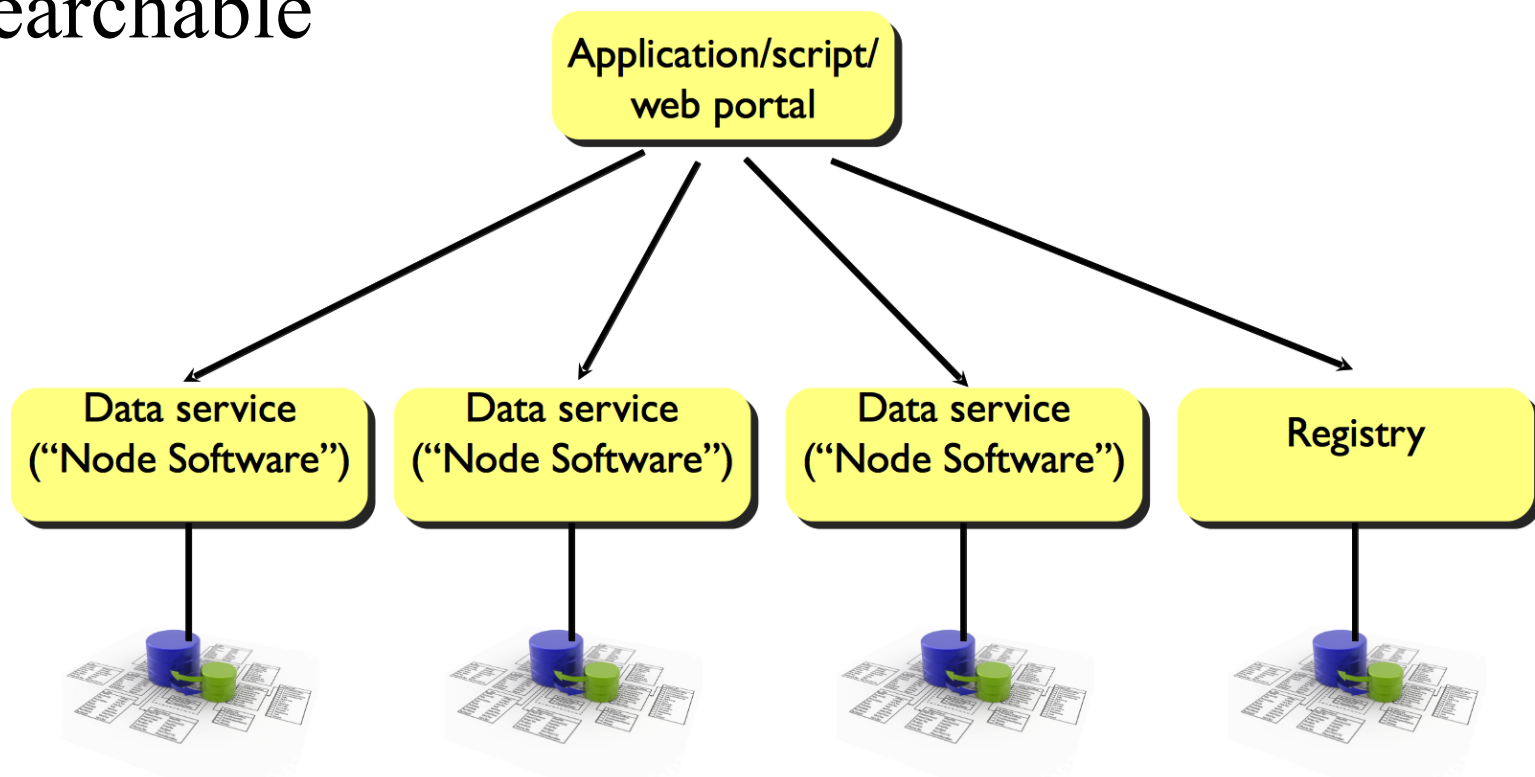
Go

Enter search terms or a module, class or function name.



# Deployment Strategy

- All data on the WWW
- Databases stay at their producers' sites
- All data searchable



e.g.

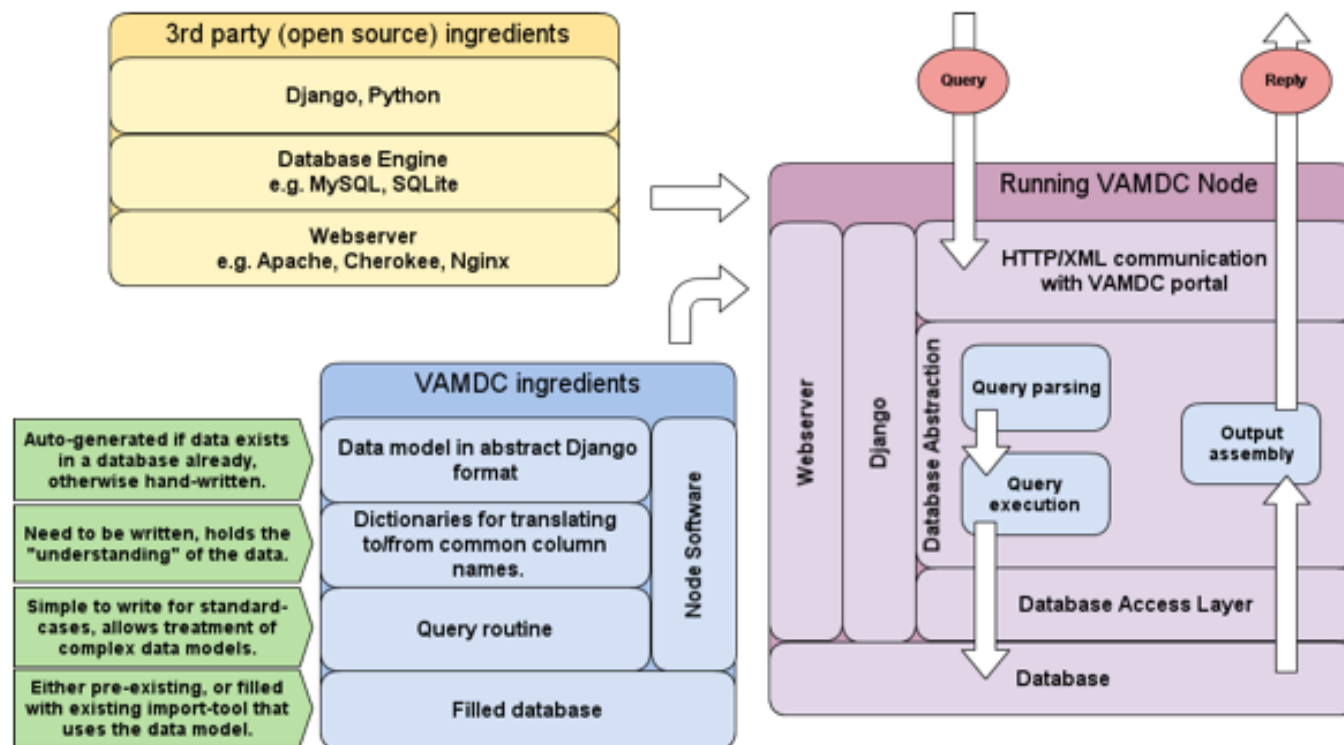
VALD

Chianti

HITRAN

## Step by step guide to a new VAMDC node

Let's have a look at the structural diagram from the [Introduction](#) once more:



If you have followed the instructions of the page on [Software prerequisites and installation](#), you are done with the yellow box in the figure. This page will tell you first how to configure and write the few code bits that your node needs before running (blue box), and then how to deploy the node and make it run as shown in the violet box.

### Table Of Contents

#### Step by step guide to a new VAMDC node

- The main directory of your node
- Inside your node directory
- The data model and the database
  - Case 1: Existing database
  - Case 2: Create a new database
- Using the XML generator
- The query routine
- The dictionaries
  - About the RESTRICTABLES
  - About the RETURNABLES
- Testing the node

### Previous topic

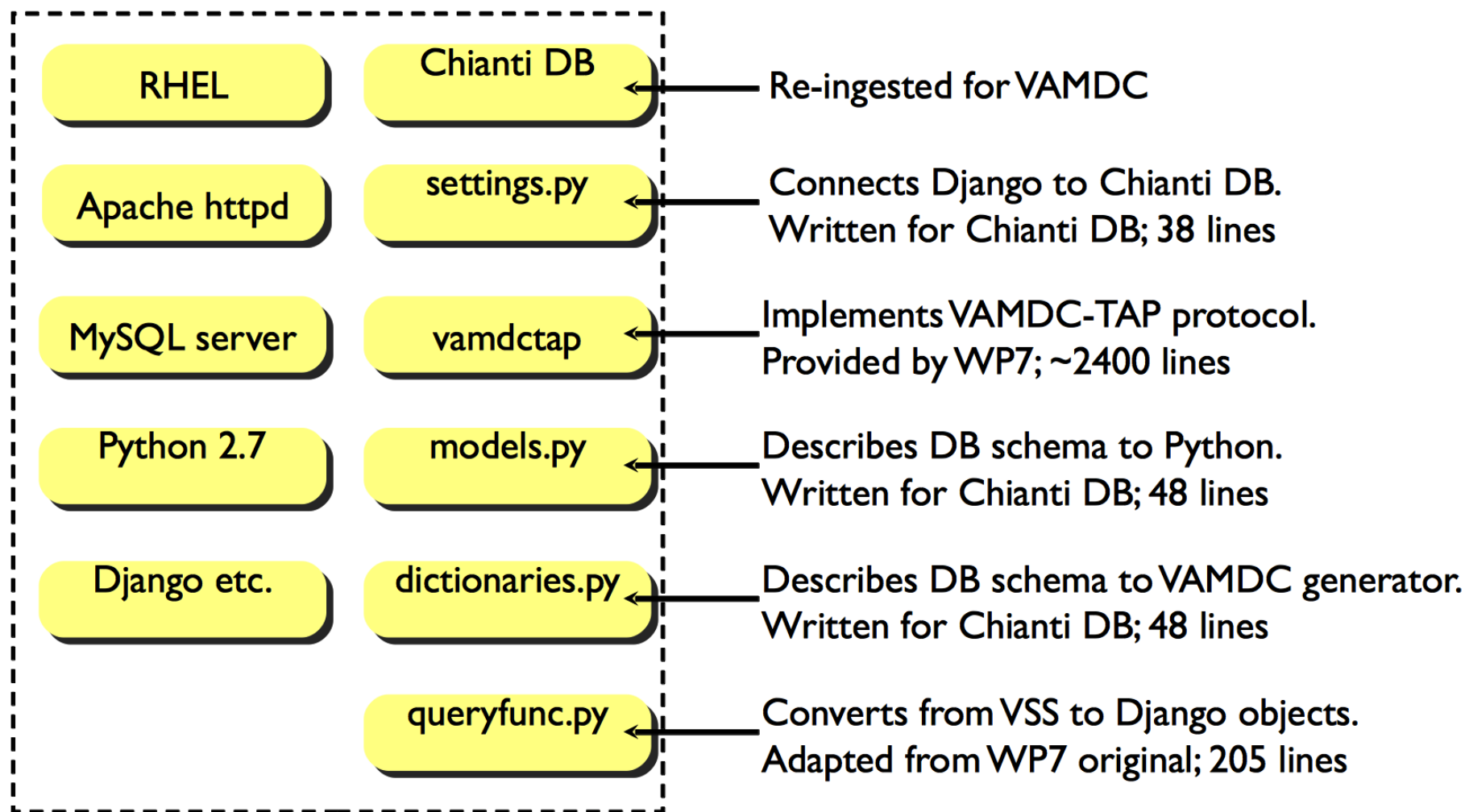
Software prerequisites and installation

### Next topic

How to get your data into the database

# Deployment stack at Data Node

## an example with CHIANTI



Example of CHIANTI

# Routes to Deployment

Canonical:



Web application



Web framework



Language



Web server



Relational database

Alternative:



Web application

?

Web framework



Language



Web server



Relational database

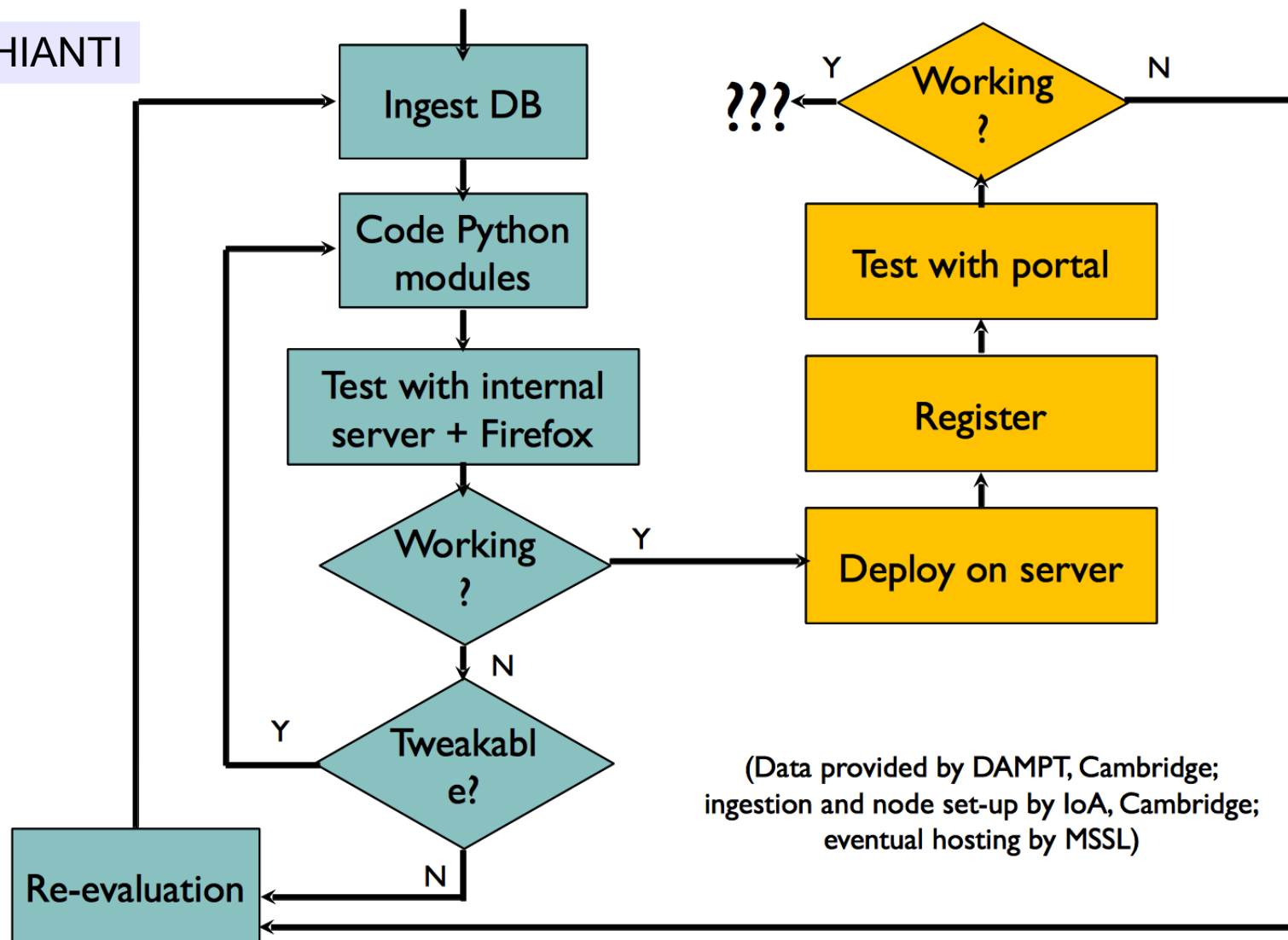
DIY:

Any implementation you like, using any type of database

# Deployment Tests

essential to confirm successful deployment

Example of CHIANTI



(Data provided by DAMPT, Cambridge; ingestion and node set-up by IoA, Cambridge; eventual hosting by MSSL)

# Comprehensive Deployment

important early task to include most AM data

Data	Site	Software
VALD	Uppsala	WP7-Python
Chianti	Cambridge/MSSL	WP7-Python
CDMS	Koeln	WP7-Python
BASECOL	CNRS-LPMAA-LUTH	WP7-Java
STSP/GhoSST	CNRS-LPG/IPAG	Custom
UDfA	QUB	WP7-Python
Lund	Uppsala	WP7-Python
Spectr-W3	VNIITF	WP7-Python
S&MPO	CNRS-GSMA	WP7-Python
CDSD	IAO	WP7-Python
HITRAN	UCL	WP7-Python
Methane lines	CNRS-ICB	WP7-Python
Ethylene	CNRS-GSMA	WP7-Python

# Going Forward

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- Further database deployments
  - Additional deployment workshops → VITAL
- Parallel Releases



To access a release, user needs only portal and registry URLs

- Training of users
- Feedback