Technical Improvements and future directions for eCollection and multimodal data capture in the Australian Bureau of Statistics (ABS)

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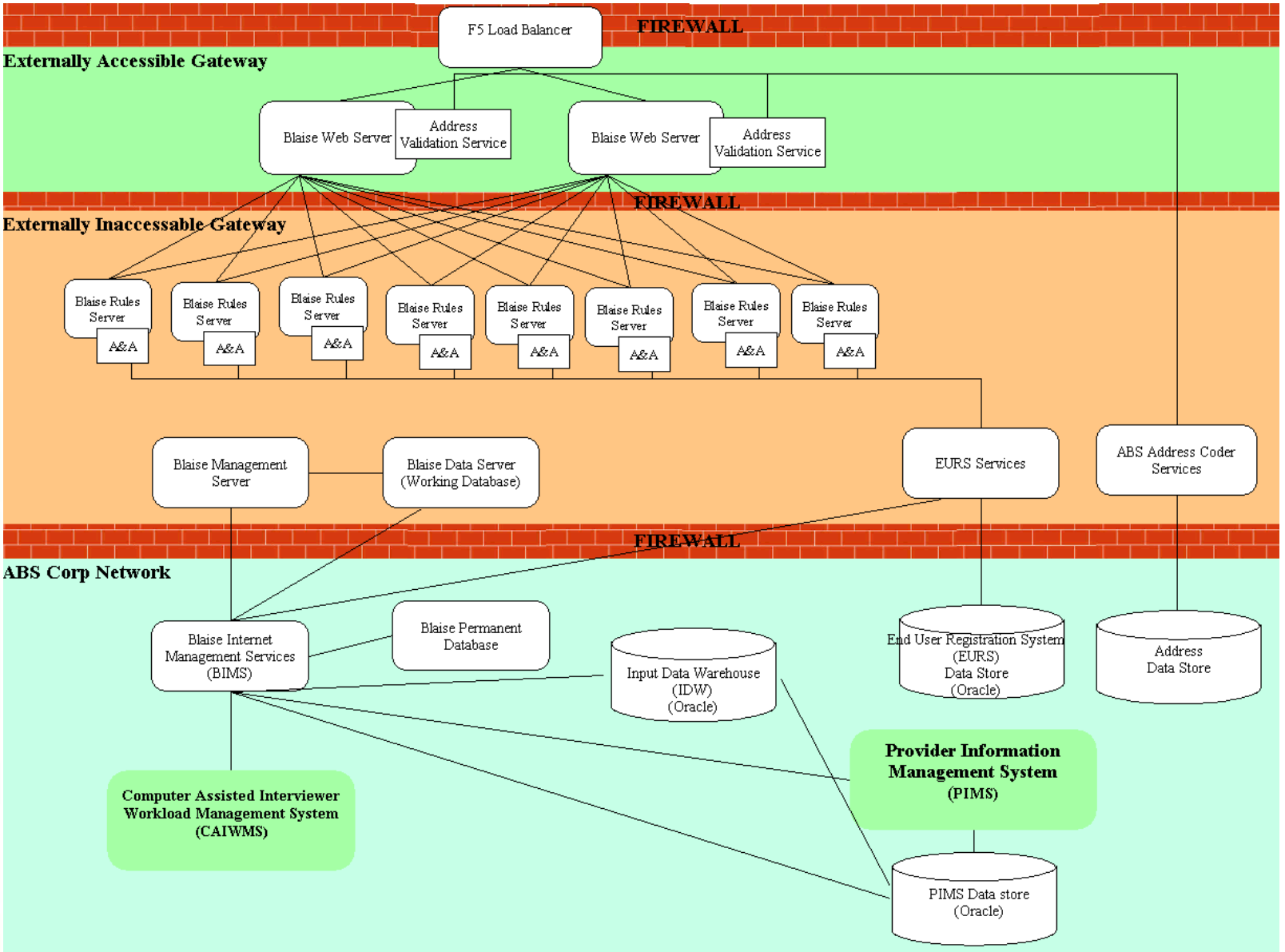
Background

- Blaise 4.8.4 is being used for all web Form Development, as well as being used for Multimodal Data collection, traditional CAPI collection modes and for micro editing of data
- Across the last two years there has been increased demand for additional functionality such as richer user interface designs, improved accessibility compliance, and integration with external services, particularly to geospatially enhance ABS Surveys
- Opportunities to utilise corporate Authentication and Authorisation solutions, to provide self service opportunities to data providers and provide the ABS with future opportunities for scale out of the Blaise capacity

Current Blaise Architecture



Notes:

A&A Refers to the Authentication and Authorisation Dll

Links of the Blaise Data Server other Blaise Servers (Web & Rules) have been removed to improve readability of diagram

Links of the Blaise Management server to all other Blaise Servers (Web, Rules, Data) have been removed to improve readability of diagram

Current Architecture

- 2 Web Servers, 8 Rules Server, 1 Manager, 1 Data Server – optimal configuration based on Load Testing
- Address Validation Service – installed on the web servers – allows addresses entered in the Blaise Instrument to be validated against a database of addresses the ABS keeps
- Authorisation Dll – allows ‘completion status’ to be written back to the obligation data store
- BIMS – Blaise Internet Management Services – provide services for all systems to interact with Blaise

Current Challenges and Limitations

Authentication and Authorisation Solution

- Additional complexity in the Blaise environment
  - additional security checks
  - Utilisation of Blaise to provide security functions
- Authentication credential at the household and business level, rather than for an individual
- Challenges in ensuring authorised person when resetting passwords on accounts
- The current solution is a bespoke system
- Fleeting is not enabled
- No consolidation of obligations to present to a user

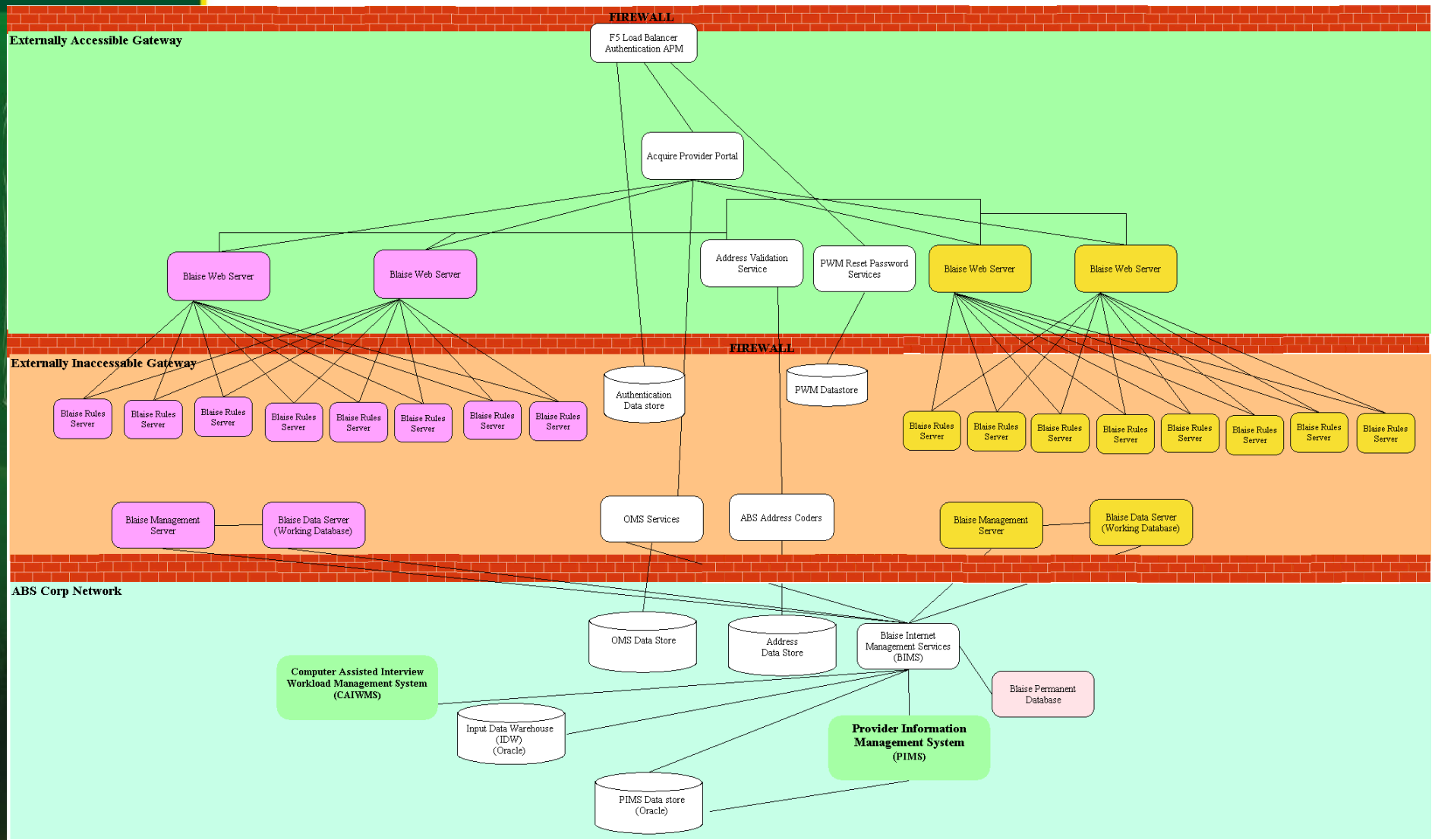
Current Challenges and Limitations cont.

No leverage of partially complete records

Plug and Play ‘ability’

- The address validation solution is highly coupled to the ID and name of the Blaise fields it interacts with
- Instruments either have to use the same layout and field names or there service needs to have changes made, recompiled and redeployed

Proposed Future Blaise Architecture



Notes:

Mark Complete will be a service called from the ASP Blaise Pages, rather than from the Instrument

Links of the Blaise Management server to all other Blaise Servers (Web, Rules) have been removed to improve readability of diagram

Purple Park is a single Blaie Park, Yellow is another. Orchestration of dual parks is done through the single instances of the OMS Services, and BIMS Services, each of which would contain metadata to determine which park installation is on

Improvements

Reduction of non-Blaise components on Blaise Servers

- Address Validation Dlls
- Authentication and Authorisation Dlls
- Login and Obligation display

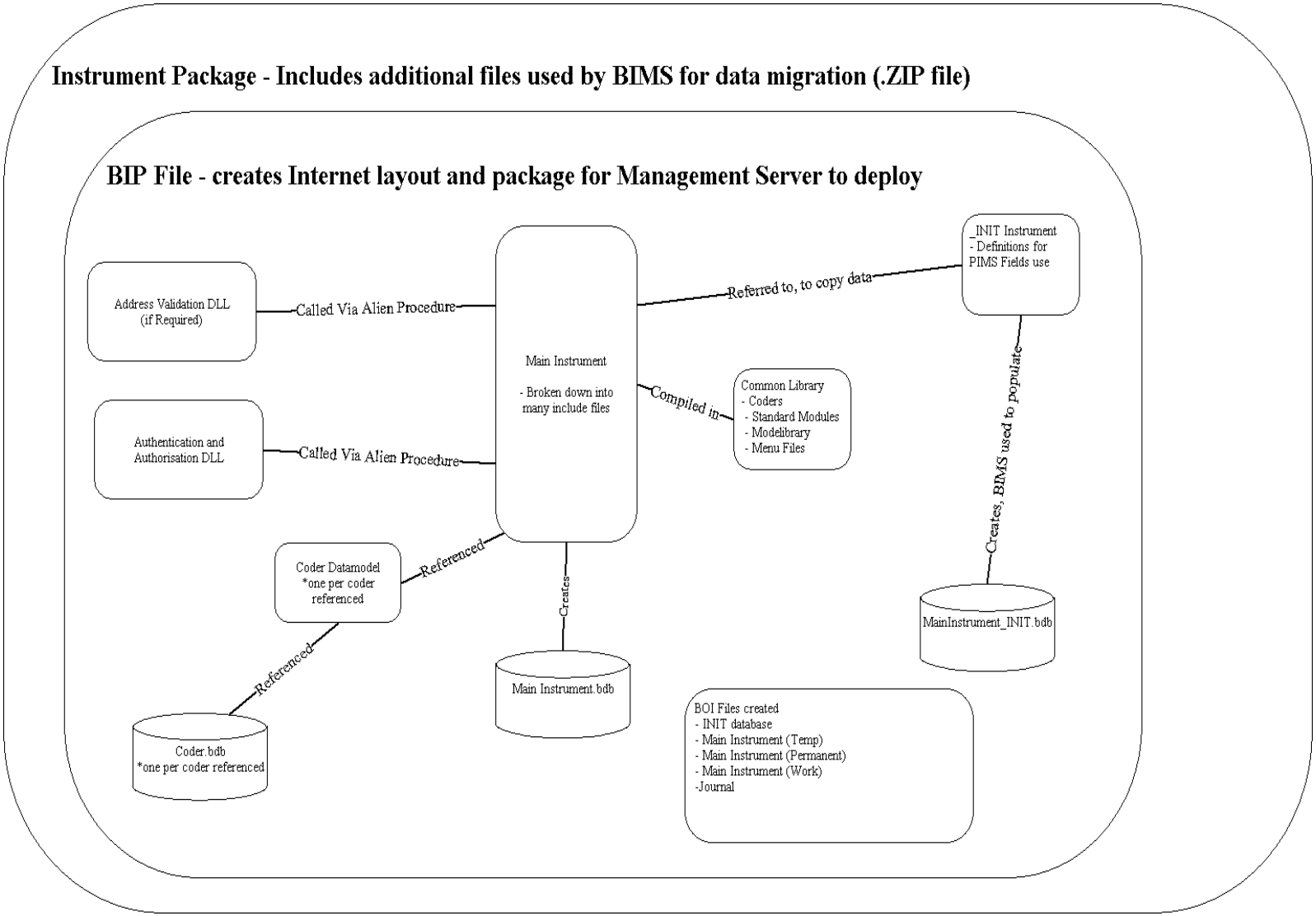
Authentication and Authorisation

- Solution is able to be used by other systems
- Improved self-management function
- Use of third party components
- Higher load capacity
- Provision of a ‘portal’ to provide users a single point to initiate all actions

Improvements cont.

- **Improved Load Performance**
  - **Authorisation functions no longer on park – data storage, process, security**
- **Improved reuse**
  - **Of the Authentication and Authorisation solution developed**
  - **Of the Address Validation Service**
- **Ability to scale out to multiple Blaise Server Parks**
  - **Manage risk by separating collections onto different parks**
  - **Improve load and performance metrics**

Blaise Instrument Architecture



Accessibility Compliance

- Menus, Headers and Footers – they are not marked up as lists, so are not able to be easily navigated
- Resize of text using Browser zoom
- Pages sharing the same title – each page uses the Data model name for the title
- Change of context – occurs when rules are re-run on a page (currently happens on re-derive of field, or on error being triggered)
- Error message not being read by screen readers
- Label_ids are not meaningful but are used by screen readers
- HTML code does not validate appropriately (when checked with W3C Validator)
- Repeated content in headers and footers
- Radio button selection and check box selection is not consistent in whether you can click on the line to select

Accessibility Compliance cont.

- Changes are in three broad categories
  - Within the instrument – in the code
  - Within Stylesheets, Menu Files
  - Would require changes to Blaise Software in order to implement
- Changes already made
- The user of the layout=presentation for tables which are implemented for layout purposes only
- Text, rather than text as images on buttons
- Alt text has been added to all images
- Improvement of layout of forms so that screen readers keep context together
- Using Header Markups to enable users to scan through the page to provide a structure which can be quickly navigated
- Colour Contrast
- Role of pages is no longer set to ‘application’

Other areas of work

Management Information – eForm Flag

- Initially implemented to allow analysis of respondent responses
- Has further use in streamlining processes
- Future use in possibly being able to run the ‘2 rulesets’ rather than processing all CAWI records through the CAPI rules

Alerting, Monitoring and System Stability

- Recently Alerting, through scripting a user to login and access a form has been implemented, to allow early detection of issues
- Servers are now restarted on a regular basis to ensure memory leaks are cleared and system remains responsive – this is a temporary measure

Other areas of work cont.

Modular Design

- Desire for ‘plug and play’ within the ABS
- Create Instruments as ‘building blocks’ which are assembled to order, rather than creating an instrument as a single compilation
- Components such as the Address Validation Service are enablers for this
- Creation of surveys with a dependency order of completion is a highly desirable future delivery

Summary

- Significant work has been done to fine tune the infrastructure based on the last two years of learning
- Improvements in the Authentication and Authorisation space will give eCollection the space to grow and expand the load and performance of Blaise
- Utilisation of plug and play components is a strong focus of future delivery
- Work will continue on Accessibility compliance, system stability and how to continue to support multi modal data collection.

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Thank you

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Questions ?