Web/Cloud based CATI using queXS

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Overview

- What is the Cloud?
- Why use the Cloud for CATI?
- What is queXS?
- CATI in the Public Cloud with queXS example
- CATI in the Private Cloud with queXS example
- Case study - Coliban Water Study collaboration
- Conclusions and future plans

Cloud computing - What is "the Cloud"

- Public cloud and private cloud
- Public Cloud
  - NIST Definition: "The cloud infrastructure is made available to the general public or a large industry group and is owned by an organization selling cloud services."
- Private Cloud
  - NIST Definition: "The cloud infrastructure is operated solely for an organization. It may be managed by the organization or a third party and may exist on premise or off premise."

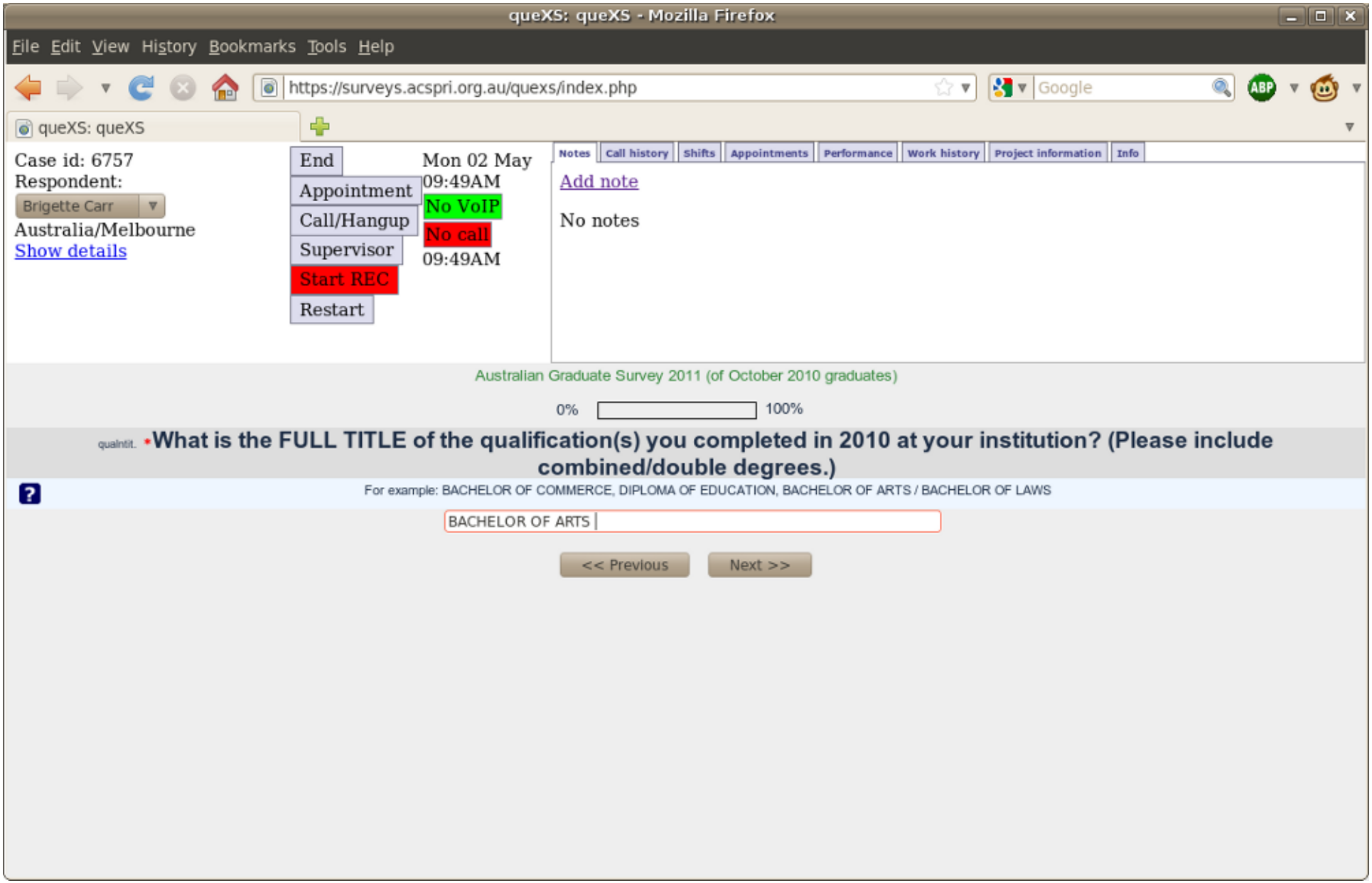
CATI in the Cloud - Why?

- Reduces infrastructure requirements
  - Only basic infrastructure required
  - Minimal software and hardware for interviewers
- Suitability for project-based workflows
  - Can "pay as you go"
  - Scalable on demand and as required
- Ability to set up a CATI system (almost) anywhere with Internet access

queXS

- queXS is an open source, web based CATI system developed by ACSPRI
- Open source
  - Software including source code is available for free
- Web based
  - Runs on a web server
  - All interactions with the system made via a web browser

queXS interviewer screenshot



queXS CATI in the Cloud

- queXS is a good candidate for use in the Cloud as it is web based and open source
  - Cloud services main users are "web services" such as Google Mail.
  - Many Cloud service providers provide Open Source environments (such as Linux) pre-configured and support them
- Other CATI systems may work in the Cloud but could have licensing or platform issues
  - Interface windows based or only restricted in web
  - Licensing by CPU or server

queXS CATI in the Cloud

- ACSPRI has made queXS CATI available in 3 editions
- Each edition contains the same software but "packaged" differently

1. Community Edition
    - Free and available to download, install and configure on your own systems
2. Public Cloud Edition
3. Private Cloud Edition

queXS CATI and the Public Cloud - SaaS

- Software as a Service - SaaS
- NIST Definition: "The capability provided to the consumer is to use the provider’s applications running on a cloud infrastructure..."
- Access to the queXS CATI application via a web browser without access to the underlying systems / infrastructure

queXS CATI and the Public Cloud - SaaS

- Uses Amazon Elastic Compute Cloud (EC2) infrastructure
  - No software to install
  - No servers to operate and maintain
  - CATI system available for use immediately
  - Can choose a data centre close to your survey centre
  - "Pay as you use" monthly fee

queXS CATI and the Public Cloud - SaaS

- Interviewers can be located anywhere they have access to:
  - Basic workstation
    - Most netbooks, laptops, desktop workstations manufactured in the last 5 years
  - Broadband Internet connection
  - Web browser
- If using VoIP
  - A headset with microphone
  - A software phone that uses SIP or IAX technology

queXS CATI and the Private Cloud

- Where public cloud services may not be suitable
  - Limited or cost prohibitive Internet access
  - Strict security policies
  - Policies against use of external providers
- Can implement a basic Private Cloud or use one provided by your organisation

queXS CATI and the Private Cloud

- Uses Virtualisation to implement a basic Private Cloud
- Virtualisation is using application software to allow for one or more "virtual computers" to run on a single physical computer
- Uses VirtualBox Virtualisation software (free)
- Installed on organisation's own IT infrastructure

queXS CATI and the Private Cloud

- A pre-configured, ready to run system in a single image file
  - Simpler and cheaper than installing and configuring a traditional CATI system
- One time fee for access to virtual system image and support
- Requires use of organisational resources and may require closer communication with IT department

CATI in the Cloud - Case study

- Coliban Water Study
- 20 minute follow up telephone interview
- Question items about water conservation / use
- Respondents in the area serviced by the Coliban Water Authority

Case study background

- Project to be undertaken by the University of Ballarat (approximately 115km from ACSPRI office in Melbourne)
- University of Ballarat did not have sufficient interviewers
- Decided ACSPRI and Ballarat would undertake data collection jointly

Case study implementation options

- Possible implementation options:
  1. Program the instrument in survey software systems currently in use at the different organisations, split the sample and then merge the data at the end
  2. One organisation to purchase/setup the same software system so instrument can be programmed once but data would still need to be merged and sample split
  3. Use a single "Cloud" hosted CATI system (queXS) accessible by both sites

Case study concerns

- Network latency
  - The time taken for data to travel from the Cloud infrastructure to the client (interviewer workstation)
- Chose a Cloud provider located physically close (within 1000km of both sites)
- Provider accessed the same physical networks (Peering) as both sites
- Can do a basic "ping" test to determine latency

Case study outcomes

- Required small system modifications
  - ACSPRI uses auto dialing VoIP, Ballarat uses manual dialing
  - queXS modified to allow VoIP or manual dialing depending on interviewer's location (rather than on the project).
- Single instrument, single sample, one data output without the need to merge
- Supervisors on each site organised shifts and staffing to achieve maximum coverage overall
- queXS is web based, so able to work through the university's "proxy server" system on normal workstations without modification or having to install any software

Conclusions

- Benefits/advantages of Cloud based CATI
  - Fast and easy to setup
  - Almost universal access to system using existing workstations
  - Can run side by side with existing systems as only web browser required to operate
  - Allows for remote access and cross site collaboration
- Future plans
  - Pre-configured VoIP providers to allow system to make real calls as soon as it is commissioned
  - Availability on more Cloud service providers

References

- **NIST Definition of Cloud Computing (Draft Special Publication 800-145)**
- **queXS CATI Software**