Abt Global's Data Collection and Analytic Computing Environment (DC-ACE)

Secure, Fully Featured Data Collection and Analytic Computing in the Cloud

Abt Global built its Data Collection and Analytic Computing Environment (DC-ACE) to meet all of its clients' data science and analytics challenges. DC-ACE rests on the twin foundations of fully featured data collection and analytic capacity, and data security and compliance.

Full-featured Data Collection and Analytic Capacity

The DC-ACE platform covers the full data lifecycle, from collecting/acquiring survey and administrative data, through data cleaning, analytic programming and analysis, data visualization and dissemination, and long- term data retention or data destruction.

DC-ACE incorporates multiple modes of data collection, including Computer Assisted Web Interviewing (CAWI), Computer Assisted Telephone Interviewing (CATI), In-Person Computer Assisted Personal Interviewing (CAPI), Audio Computer-Assisted Self-Interview (ACASI), Interactive Voice Response (IVR). DCACE also supports SMS texting for reminders and as a direct survey mode. As a multi-mode solution, DC-ACE integrates all processes from survey design and hosting to sample management and data collection, to formatting and data processing, reducing programming and data processing time, and maximizing data quality by limiting the risk of error. The integration allows to move samples easily from one mode to another to increase response rates and interview hard-to-reach populations. DCACE leverages industry leading Forsta Horizons software for its primary software tool.

At Abt Global, all analytic activity occurs in the DC-ACE environment. Data are centralized, so project analysts can access them with any tool within this secure environment. DC-ACE is equipped with a full complement of state of-the-art quantitative, qualitative, geospatial, visualization, and survey/data collection tools, to meet diverse project analytic needs. The use of shared project folders allows project analysts to collaborate and review one another's work. The efficiency of this approach makes it unnecessary to move data around or to add or upgrade software on users' desktop computers, preventing delays.

To apply efficient and high-quality solutions to data analytics, Abt Global maintains a repository of tested and re-usable code, which provides strict version control. Abt Global uses the most advanced versions of its core analytic tools and deploys them on high-performance, redundant servers in the cloud.

DC-ACE is built on Amazon Web Services (AWS), the leading cloud service provider. AWS guarantees to be available more than 99.99% of the time, and Abt Global project analysts can access the system from any location. The use of AWS allows us to easily increase server capacity to process larger or concurrent jobs more quickly. Abt Global is an AWS Advanced Partner; this status testifies to Abt's expertise in maintaining this platform and gives Abt direct access to AWS staff and expertise.

Data Security and Compliance

Supporting all project activities in a single environment minimizes risks inherent in moving data and storing them in multiple locations. DC-ACE complies with HIPAA, FERPA, and FISMA Moderate standards. AWS addresses the FedRAMP security control requirements that are aligned to the NIST 800-53, Rev. 5 Security control baseline for Moderate impact levels. DCACE uses only AWS components that are fully FedRAMP authorized.

CORE ANALYTIC TOOLS AVAILABLE ON DC-ACE

Quantitative
- SAS
- Stata
- R Studio
- Python/Anaconda
- SPSS
- MPlus

Qualitative
- NVivo

GeoSpatial
- ArcGIS Pro
- ArcGIS Enterprise
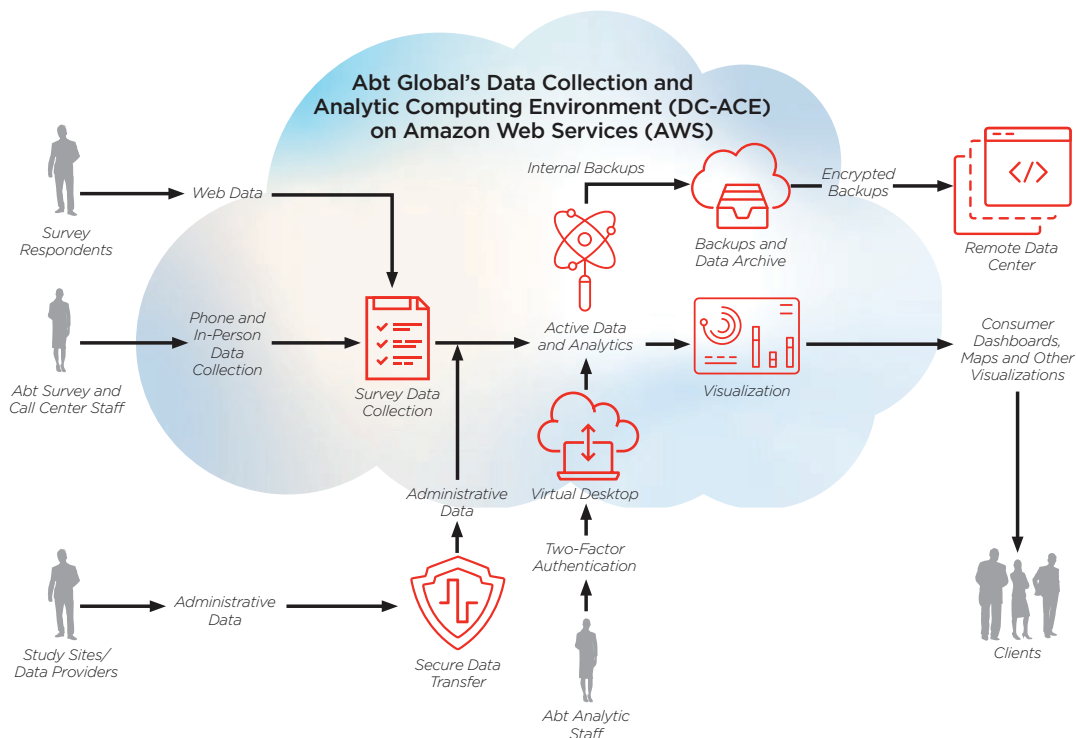
Visualization
- Tableau

Survey/Data Collection
- Forsta
- Sytel

Databases
- SQL Server
- PostgreSQL

Version Control
- BitBucket

Abt Global's Data Collection and Analytic Computing Environment (DC-ACE) on Amazon Web Services (AWS)

DC-ACE has received a FISMA Moderate Authorization to Operate (ATO) from the U.S. Department of Housing and Urban Development as well as from the Administration for Children and Families (ACF) division of U.S. Department of Health and Human Services.

End users are the most vulnerable point in any secure system. Access is restricted to project data; only authorized users working on a particular project have access to the data for that project. To further minimize this risk, authorized users access DC-ACE through two-factor authentication, including complex passwords that must be changed every 60 days. After users log in, the system presents them with a virtual desktop, allowing them to do all their work in the secure environment.

Before users can copy data out of the secure environment, the data is first scanned by a Data Loss Prevention tool, which uses advanced algorithms to detect Personally identifying information (PII) or other sensitive data. If users need to transfer sensitive data to or from a client or third party, they must use Cerberus FTP, which is the only approved data sharing tool.

Additional technical security features include encrypted storage, intrusion detection systems, advanced anti-virus protection, and audit log aggregation systems. DC-ACE is monitored seven days a week, 24 hours a day by a external security operations center (SOC) using advanced monitoring and alerting tools. This SOC looks for indicators of compromise and unusual activity and continuously updates their own searches with the current information in the wild and from well-known threat intelligence sources. Expert security and IT staff conduct regular scans and apply patches to address known issues. A formal configuration control board reviews all changes to DC-ACE before they are implemented.

Project data on DC-ACE is backed up in two ways: AWS Snapshots used to back up complete pictures of a disk, and encrypted filebased backups maintained and stored on AWS and at a remote data center outside of AWS, which allows to restore single files quickly, and ensures data durability in the highly unlikely event of a long-term disruption to the AWS infrastructure.

DC-ACE stores data for several Federal clients including the U.S. Agency for International Development, Centers for Medicare and Medicaid Services, Centers for Disease Control and Prevention, Social Security Administration, EnvironmentalProtection Agency, and the U.S. Departments of Justice, Housing and Urban Development, Labor, and Education. DC-ACE also holds data for foreign governments, state and local agencies, foundations, universities, corporations, and non-profits.

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