Session 87PD, Actuaries in the Cloud: Data Lakes to Downstream Analytics

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Let’s talk about the cloud...
90% of organizations
Utilizing cloud services as part of their IT operations

80% of all IT budgets
Committed to cloud solutions by April of 2018

73% of companies
Planning to move to a fully software-defined data center within 2 yrs

CLOUD ADOPTION IN HEALTHCARE

- **83% of healthcare IT execs**
  - Provider organizations report they are using cloud services today

- **67% of healthcare apps**
  - SaaS applications

- **92% of providers**
  - See the value of cloud services

- **56% of organizations**
  - Say the top reason for cloud adoption is cost savings
2. Economies of Scale
3. Speed & Agility
4. Differentiate
5. Go Global

FIVE BENEFITS OF CLOUD COMPUTING
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1. **Budget**
   - Trade CapEx for variable OpEx

2. **Economies of scale**
   - Stop guessing capacity

3. **Speed & agility**
   - Get up and running quickly

4. **Differentiate**
   - Focus on your customers, spend time where it matters

5. **Go global**
   - Deploy to multiple regions around the world easily
LANDSCAPE OF CLOUD PROVIDERS

IaaS Platforms

PERCENT OF COMPANIES WHO INDICATED PREDOMINANT IaaS PLATFORM

- 37.1% Amazon Web Services
- 28.4% Windows Azure
- 16.5% Google Cloud
- 11.3% Other
- 3.6% Softlayer
- 3.1% Rackspace
ACTUARIAL CASE STUDY #1:
A SMALLER HEALTH PLAN WITH NO EXISTING ENTERPRISE DATA WAREHOUSE

• Bethany McAleer, FSA, MAAA
  • Consulting Actuary, Axene Health Partners
INTRODUCTION TO DATA LAKES

• A data lake is a repository that holds a vast amount of raw data in its native (structured or unstructured) format until the data is needed

• A data lake is ideal when valuable data sources are dispersed among on-premises data centers, SaaS providers, partners, third-party data providers, or public datasets

• A data lake is an architectural approach that allows you to store massive amounts of data into a central location, so it's readily available to be categorized, processed, analyzed and consumed by diverse groups within an organization
ACTUARIES IN THE CLOUD: DATA LAKES TO DOWNSTREAM ANALYTICS

FUNCTIONS OF A DATA LAKE

- **Data Submission**: Receive batch imports or streaming data
- **Data Processing**: Validation, metadata, and indexing
- **Data Management**: Transform, aggregate, and analyze the data
- **Search**: Catalog and search the indexed data
- **Publish**: Visualize the data through a BI tool
This usage model diagram illustrates key actors and use cases that the data lake enables, in context with the key component areas that comprise the data lake.
KEY COMPONENTS OF A DATA LAKE

- **Data Ingest**: File uploads or streaming data
- **Data Storage**: Cleaned and curated data
- **Analytics App**: Perform data analysis
- **Query Tool**: Query and export raw data
- **BI Dashboard**: Data visualization & insights
ACTUARIAL CASE STUDY #2: STUDYING REGIONAL VARIATIONS IN OUTPATIENT CARE USING THE MEDICARE 5% SAMPLE

• Tim Smith, ASA, MAAA
  • Partner & Consulting Actuary, Axene Health Partners
ACTUARIAL CASE STUDY #3: DOWNSTREAM ANALYTIC APPLICATIONS

- Bethany McAleer, FSA, MAAA
  - Consulting Actuary, Axene Health Partners
CLOSING AND Q&A

Questions, comments, thoughts?