Data Standards & Opportunities

March 10, 2020

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www.payload.com

About

Built in collaboration with industry experts and customers, Payload adds value from senior executives to field teams.

Based in Calgary, Alberta, Payload is an easy to use web and mobile based application for logistics and supply chain management. We deliver greater visibility, reduce accruals and admin time, and help you operate more efficiently and effectively with your service providers.

Our team includes oil and gas industry veterans and software experts to understand and fulfill customer needs.

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Introduction

Traditionally software systems focused on functionality over data, meaning the emphasis was on application features, system integrations and how we interacted with the software.

There is a wealth of opportunity lying dormant in many application databases and company data warehouses. This data can be leveraged to reduce costs, improve productivity and automate process.

Concepts such as Data Sharing and Data Markets create potential to build products and drive better decision making.

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Bespoke Applications

Initially, application development was largely bespoke and lacked any standardization.

Product Applications

Over time, common problems were solved and sold to market.

Integrated Applications

To enable synergy throughout an organization, applications evolved to integrate.

Cloud Applications

Now we share costs and platforms, reducing IT costs and enabling cross platform integrations.

APPLICATIONS

How applications have progressed over time

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Thoughts:

Is the future adaptive?

Self Arranging Intelligent Systems

Can we build ecosystems of intelligent systems which can self arrange to solve a given problem? A "grass roots" approach to problem solving that mimics natural life.

Adaptive Enterprise Systems

AI/ML combined to create a centralized enterprise software tool that can adapt how it works to suit the customer automatically through machine learning and interpolation.

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Thoughts:

What is the future of Data?

Data Sharing

Service providers can provide access to customers data that is stored through use of the service directly via database connections and a view layer. This allows for much cleaner, secure and faster data access than drop files as well as enabling BI teams to build reports and dashboards.

Data Markets

As you collect data, that data may have value in aggregation or as part of a larger data ecosystem to Data Marketplaces. For instance, if you collect route coordinates, perhaps an aggregate of daily expected route usage will be of value to first responders.

Data Continuum

In the end, there will be open data, data marketplaces and a company's internal data which all form a data continuum needed to make better decisions in a fast changing and highly competitive world.

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DATA STANDARDS

For any system to work within an ecosystem it needs to be capable of ingesting and/or producing information for other systems within the ecosystem.

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Enable Connected Systems

Useful in APIs, Data Exchange and Modelling for AI/ML – data standards enable systems to share data in a meaningful way. Standards ensure we are speaking the same language as it pertains to the business and market we are in.

Empowers Less Structured Data

Even without sharing common file formats or table structures, having a common standard for data interchange allows meaningful use of approaches such as Data Lakes. By understanding the data standard you can better translate from non standardized data.

Enables the Future

As we move into more data aggregation and data sharing, standards will be critical to success. This goes to the overall data continuum that will become more important as we progress in technology.

STANDARDS EXAMPLE

The difference between the protocol and schema.

PIDX
JSON/REST

Two sides of the coin for Field Tickets in PIDX – the functional and data standards.

JSON / REST Standard

This describes how two systems might integrate with one another on a functional level and the protocol by which to exchange data.
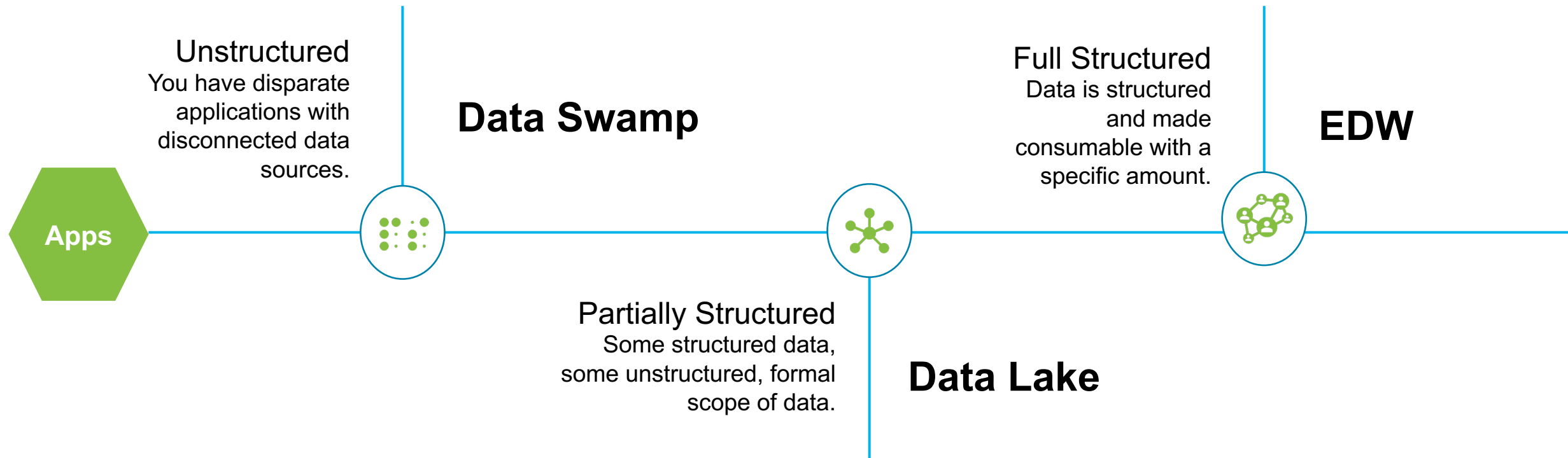
Field Ticket Schema

This describes the structure of the data and allows two systems to interpret the same meaning from the data.

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DATA STRUCTURE: A typical data journey for any organization

Apps

Unstructured
You have disparate applications with disconnected data sources.

Data Swamp

Partially Structured
Some structured data, some unstructured, formal scope of data.

Data Lake

Full Structured
Data is structured and made consumable with a specific amount.

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BE READY FOR THE DATA CONTINUUM

Before opening the floodgates, consider how your data is structured, what is sensitive and what is eligible for consumption outside a department or even a company.

Data Structure

How is your data stored and accessed today? What are some ways to structure data for use in data products going forward?

Determine Eligibility

Just because you have information stored does not mean it should be shared. Use a business layer filter and aggregate data appropriately. What can you ethically and legally monetize in your organization?

Governance

Determine what policies and procedures need to be in place and who oversees them to ensure structure and security are maintained.

Choose a Data Storage Strategy

Whether you decide on a data warehouse, data lake, virtual data warehouse or other means of consolidating your data – you'll need to drain the swamp before embarking on the data continuum.

THE DATA OPPORTUNITY

Organizations need to consider data as more than a localized commodity. Instead, consider embracing the larger opportunity of data aggregation and layering on AI/ML techniques to build a data product.

Automation

There are patterns and processes for how we engage in most activities, data can provide the foundation for automating aspects such as workflows and even span multiple organizations.

Decision Support

Complex business domains can have large volumes of data and many variables to consider. Being able to interpret these in an accurate and timely fashion are critical.

Data Sharing

Once you have a business layer in place, data has been satisfied and modelized – one option is to provide a data level integration. This gets rid of vulnerable, inefficient and expensive file drops and becomes an input to your own Data Lake or Warehouse.

Data Markets

Data Markets will grow in significance over the next decade – price and production trends, aggregates, logistics, weather, etc. can be produced and sold out on the market – or you can use markets to better decision-making based on broader intelligence than your localized data set.

Data Sharing is the trusted exchange of data between one or more organizations.

It enables better business decisions via aggregation of data inside and outside the business.

Certain data service providers enable data sharing "out of the box" with their service.

Data Sharing enables companies to expose portions of their data to trusted partners, customers or service providers in a secure way.

Cloud Data Warehouse providers should allow for shared compute costs.

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A Data Market describes a commercial repository of data which can be used by an organization as an external data source.

This is not a new concept. Many companies collect data and sell access in one form or another, typically as reports.

What has potential here are standardized sets of data published to a Data Market for your Data Lake.

Snowflake is one such Cloud Data Warehouse provider building a market.

Data Markets provide access to data outside your organization and can be used for data aggregations.

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Conclusion

- The Data Continuum – standards are key to that continuum.

- Two of the near-term opportunities that will continue to grow are data sharing and Data Markets.

- Key challenges – achieving better data structure to maximize the benefit of the Data Continuum.

- PIDX represents an opportunity for your organization to better align standardized and structured data.

How do I get there?

- ✓ Find the data opportunities for your company.

- ✓ Determine what you have and need for data.

- ✓ Structure and standardize internal/owned data.

- ✓ Acquire external data and structure to aggregate with internal data.

- ✓ Combine data to train AI/ML systems and automate business functions and/or provide high value decision support systems.

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