RULES FEST

Event-Driven Rules:

Experiences in CEP

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CTO, Business Rules and CEP

Tibco Software Inc

What is CEP?

1. ~~Next 27 slides~~

2. Join us for the CEP 101 Session

What we've heard so far:

Daniel: decisions are short-term, point in time,
So can be part of a stateless infrastructure...

BUT: decisions are made *because* of some "decision required" event
+ other events may
change our "decision context"...

What we've heard so far:

Daniel: event monitoring is also short-term – we don't normally store state for very long...

NOTE: this depends on the context – a cargo container shipping company might deal with 3-6month (typical) to 18month (exception!) cargo lifecycles

What we've heard so far:

Daniel: event rule re-use is difficult die to implicit pre-conditions / state...

NOTE: if this is true, you may need to consider re-factoring your rule conditions / query components / state model / etc

BUT can an event pattern be decomposed?

What we've heard so far:

Mauricio: events + rules + processes are very useful together...

AND: industry is seeing this too!

Why is CEP a “rules” application area?

1. Event patterns can be represented as declarative rules

   As well as continuous queries, pattern expression languages

   + many other potential ways of deriving complex events and acting upon them

2. However, rule-based CEP is one of the most successful technology implementations

   TIBCO BusinessEvents, Drools Fusion, IBM Business Events, Starview…

3. Event Processing is about deriving “time-based facts” (i.e. complex events)

   e.g. temporal fact-processing / inferencing / decision-rules

Example Event-driven Rule Engines (1)

- **TIBCO BusinessEvents**
  - Rete-based rule engine (large-scale agents)
  - MOM event channels
  - Cache/datagrid for failover / scalability sharing data
  - State models for entity lifecycles
  - Stream processor query language
  - Covers most “complex event” types
  - Used as an “event-based business logic server”
  - 100s of customers, some with 100s of deployed engines

Classic rule engine with
event + datagrid / distributed processing smarts

Example Event-driven Rule Engines (2)

- **TIBCO Hawk**
  - ECA-rule based rule engine (lightweight agents)
  - Highly specific event captures (machine, JVM, MOM, process...)
  - Filtering rules only, with limited state management
  - Used for “system monitoring”
  - 1,000s of customers, some with 10,000s of deployed engines

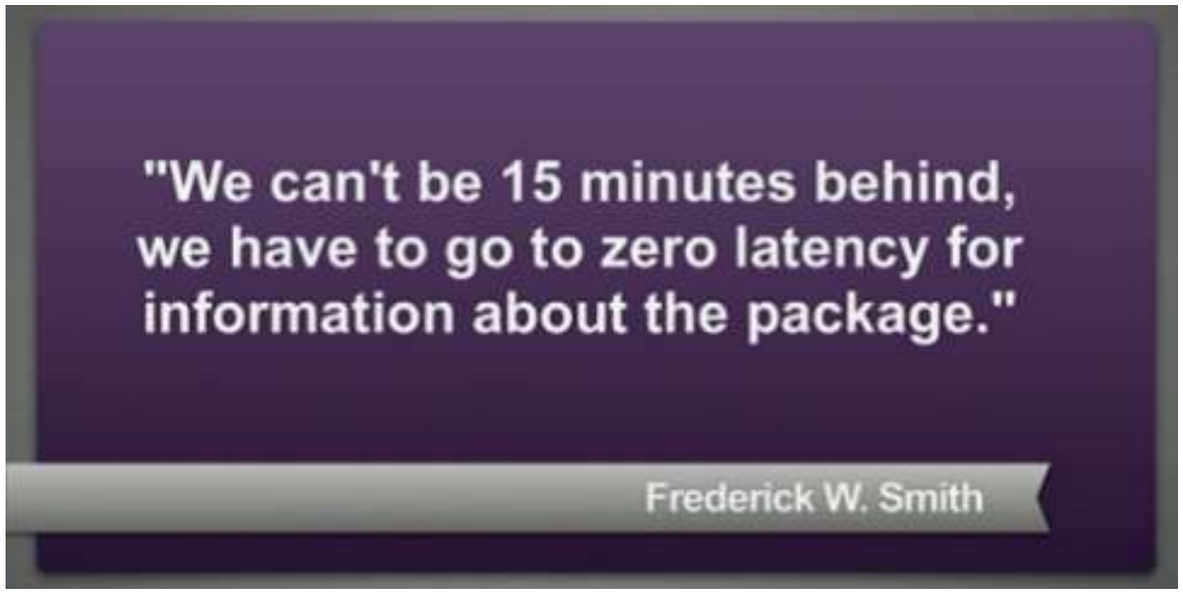
Specialised rule engine for event capture
+ alert event generation

How are these used
in business?

FedEx CIO Rob Carter, Sept 2011

Keynote,
TUCON Sept11

FedEx CIO Rob Carter, Sept 2011



“We need Event Decision-making Capabilities ... “

“... where we are moving to
- event-oriented systems ...”

“We need to make very real-time decisions about these shipments... “

Keynote,
TUCON Sept11

FedEx CIO Rob Carter, Sept 2011

“...the Decision Tunnel...“

FedEx: applying rules to Events

Event Monitoring

Event Viewing

Speed To Market results

Development Results for Part One of POC (Tibco Engineers)

Development Activity	Time
Object Model Development	7-8 days
Rules Definitions	2-3 days
Rules Development	4 days
Query logic & Dashboard UI	3 days
Redesign	3 days

Development Results for Part Two (FedEx Engineers)

Development Activity	Time
Object Model Development	5 days
Rules Definitions	3-4 days
Rules Development	5 days
Query Logic	5 days
EOR and RADAR integration	10 days
Debugging and testing	10 days

PART ONE

Provide users a system to view all inbound and outbound shipments at their facility using near real-time information. Metrics will include number of packages, service types, failures, exceptions, Estimated Available Delivery Day, and others. This

- Profile Driven, customizable for Ramp, Stations, Hub or MSLs
- World wide coverage for all FedEx Express locations
- 50,000 Flight messages a day
- 120,000 Truck messages a day
- 500,000 queries daily
- 75,000,000 Shipments transactions per day

21+ 39 = 60 days implementation

Eventing at FedEx:
FedEx's astonishing Success and the Future Promise of EDA Architectures,
Kim McBride, EA, FedEx, TUCON Sept11

FedEx: Event-Enabled Rule-Driven Operations

Event Enabled Operations Allows for Accelerating Returns
It enables agile, predictive business operations, shifting business and technologist thinking from silo to enterprise; from "reactive" to "proactive".

Eventing at FedEx:
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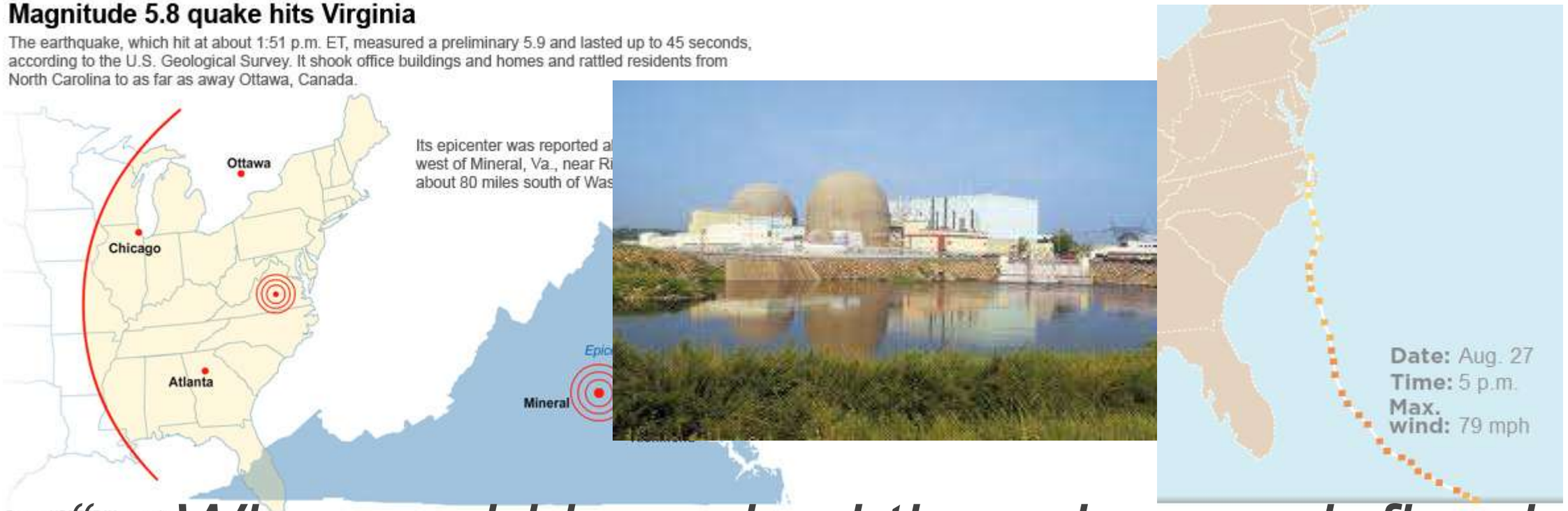
Pah! Logistics is clearly event-driven. What about something more operational?

PJM's Rich Brenton, Sept 2011

Need: intelligent operations

PJM: the power of rules...

"Our operators proved the value of updating their procedures and rules on demand this Summer..."



"... Who would have had the rules predefined for handling a quake followed by a hurricane on the E Coast?"

Double-Pah!

This real-time stuff is too specialist. Talk about something more traditionally associated with rules like insurance…

AllState's Doug Stafford, Sept 2011

Previously:

Traditional mainframe business

$1Bn pa IT budget

++Technology Duplication across LOBs

6 MOM tools

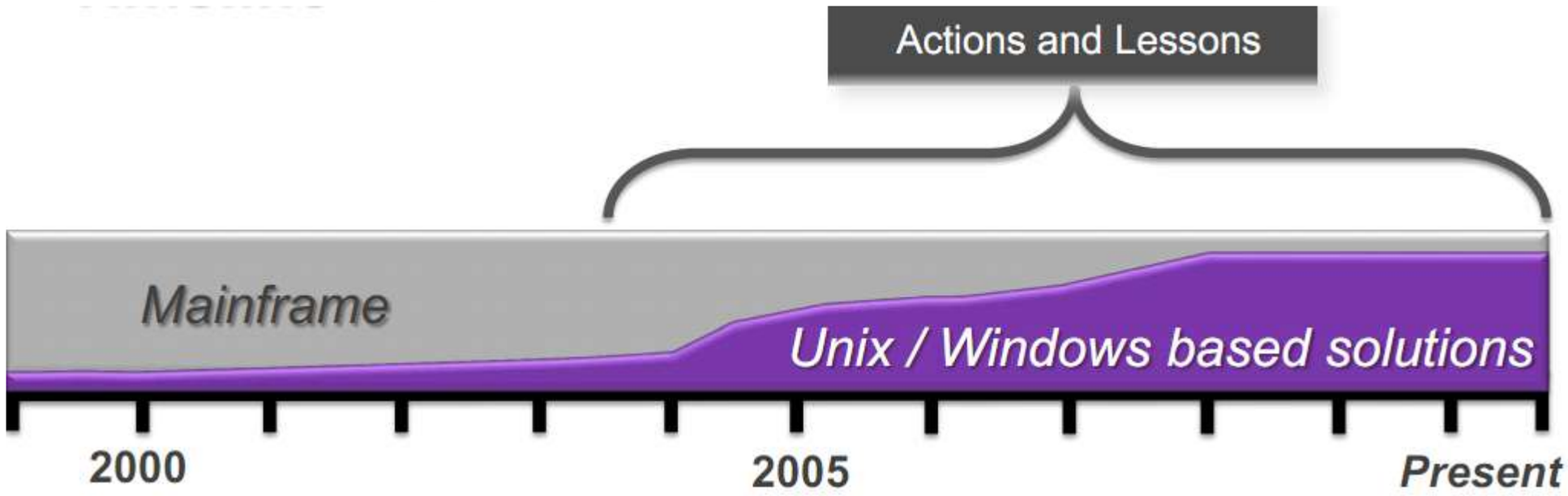
15,000 AS400 servers

...

Lessons from the Journey From Mainframe to Enterprise BPM
Doug Safford, Director EA&I Architecture
Allstate Insurance Company , TUCON Sept11

AllState's Doug Stafford, Sept 2011

Introduced
Enterprise Architecture approach:
Standard MOM
Standard ESB + framework for control
Standard Rules Engine + CEP
Simplified Partners / SIs

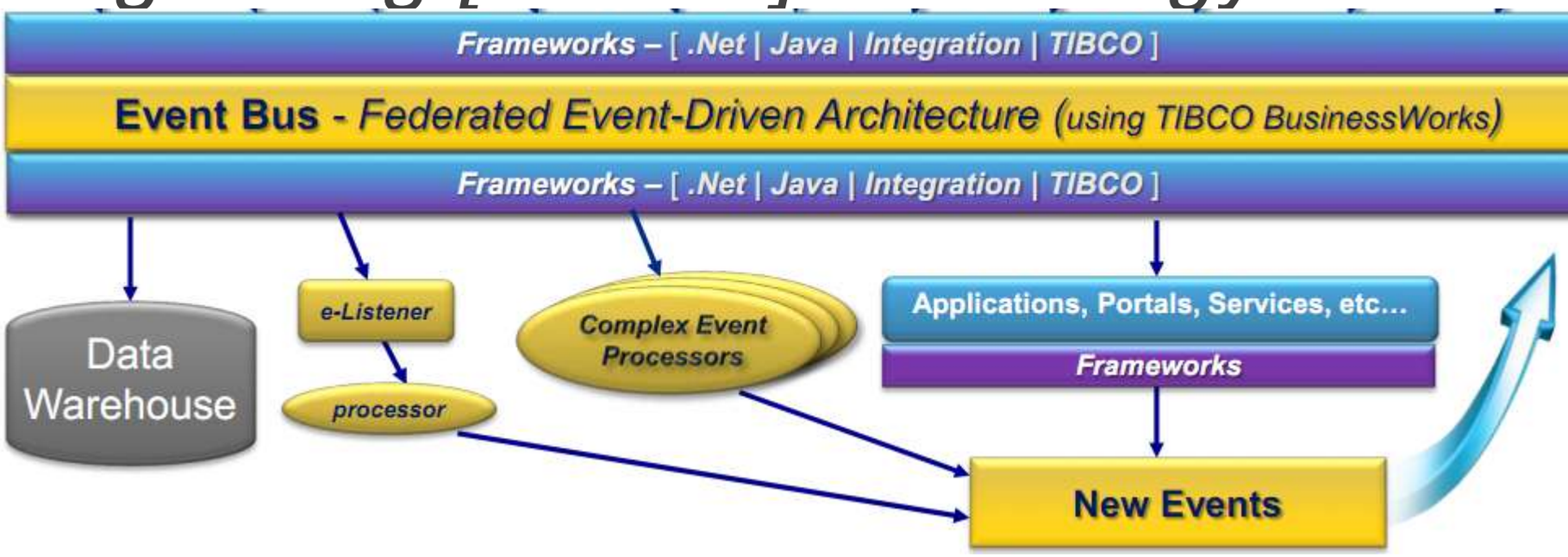


Lessons from the Journey From Mainframe to Enterprise BPM
Doug Safford, Director EA&I Architecture
Allstate Insurance Company , TUCON Sept11

AllState's Doug Stafford, Sept 2011

"We feed the ESB business events to our process and CEP engines, and to our Data Warehouse."

"... We have 800 [BE] rules engines and its the fastest growing [service] technology we use..."



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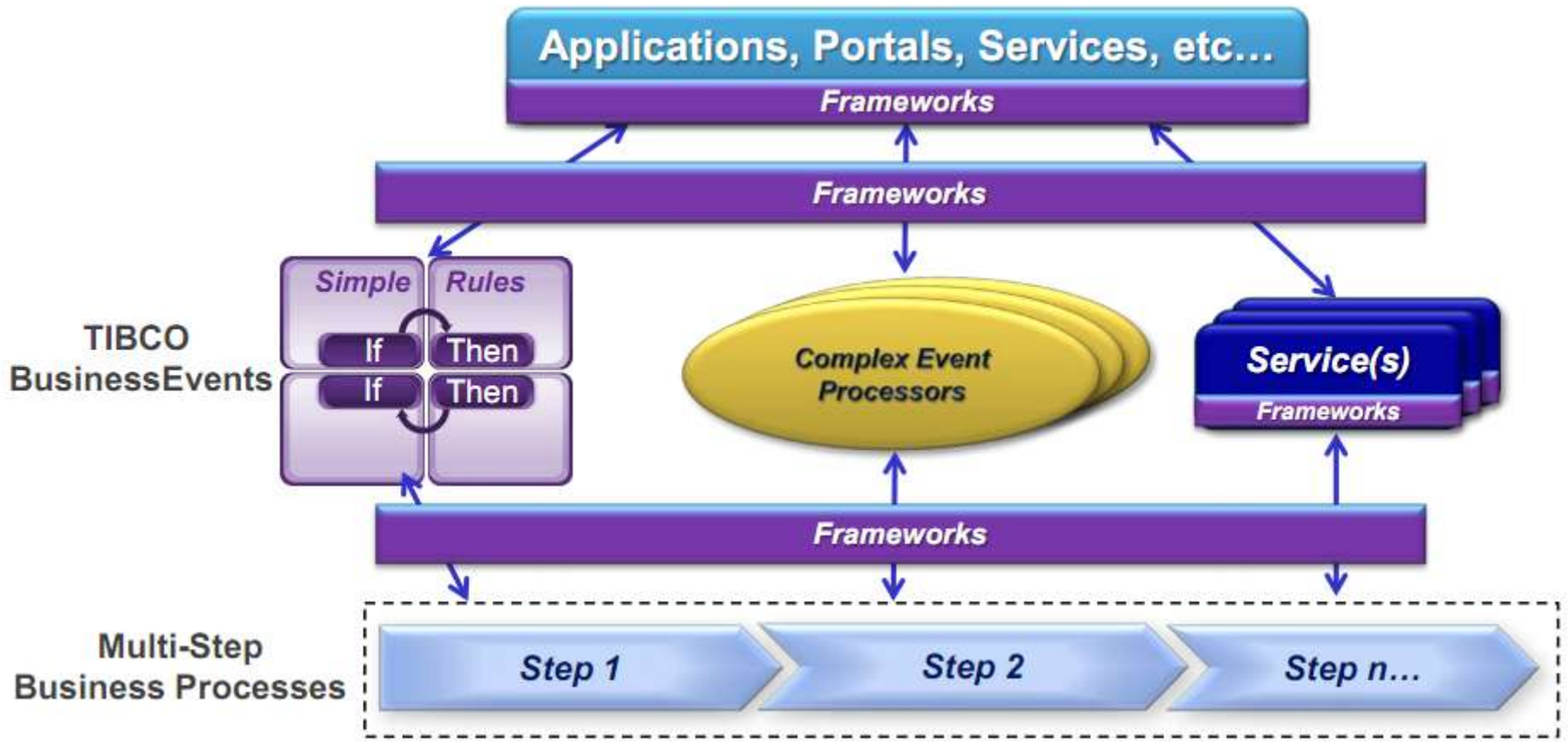
Allstate Insurance Company , TUCON Sept11

AllState: the Power of Rules

"... We monitor BAM reports to change rules overnight...
Recently increased closing rates by 15%"



Lessons from the Journey From Mainframe to Enterprise BPM
Doug Safford, Director EA&I Architecture
Allstate Insurance Company , TUCON Sept11

Triple-pah!

OK, some insurers might be exploiting advanced IT like rule-driven CEP.

What about something affecting the man-in-the-street?

Household-name Retailer - “CRM 2.0”

1. Synchronised, enriched, channel-agnostic Customer Management
   + Real time BAM + Analytics
   + streamlined Campaign Management

2. Project duration < 3 months
   (1mth development + 1mth QA/stress + <1 mth for production cutover).

3. Inference engines operate against 480Gb in-memory data
   = 32 rule engines for data prep
   + 16 rule engines for daily load processing from other systems
   + 8 rule engines for real-time TX processing

OK, so rule-based event processing
is gaining some
acceptance within corporate IT

But it ain’t nothin’ against
the [real] [SOA] [J2EE] world!

Forrester note on BR Platforms, July2011

July 5, 2011

The Future Of Business Rules Platforms

Customers Are Moving To Event And Decision Management

by John R. Rymer and Mike Gualtieri
with Phil Murphy, Boris Evelson, and Alissa Anderson

EXECUTIVE SUMMARY

Business rules platforms are a mature technology for automating decision and policy logic and for managing fast changes to that logic to keep up with business changes. Now customers are seeking more: capabilities allowing them to employ business rules to help detect and respond to business events hiding in streams of data and to automate decision life cycles. This research reveals how well vendors are responding to these new requirements.

Gartner predictions, Oct2011

Advance Toward Intelligent Business Operations

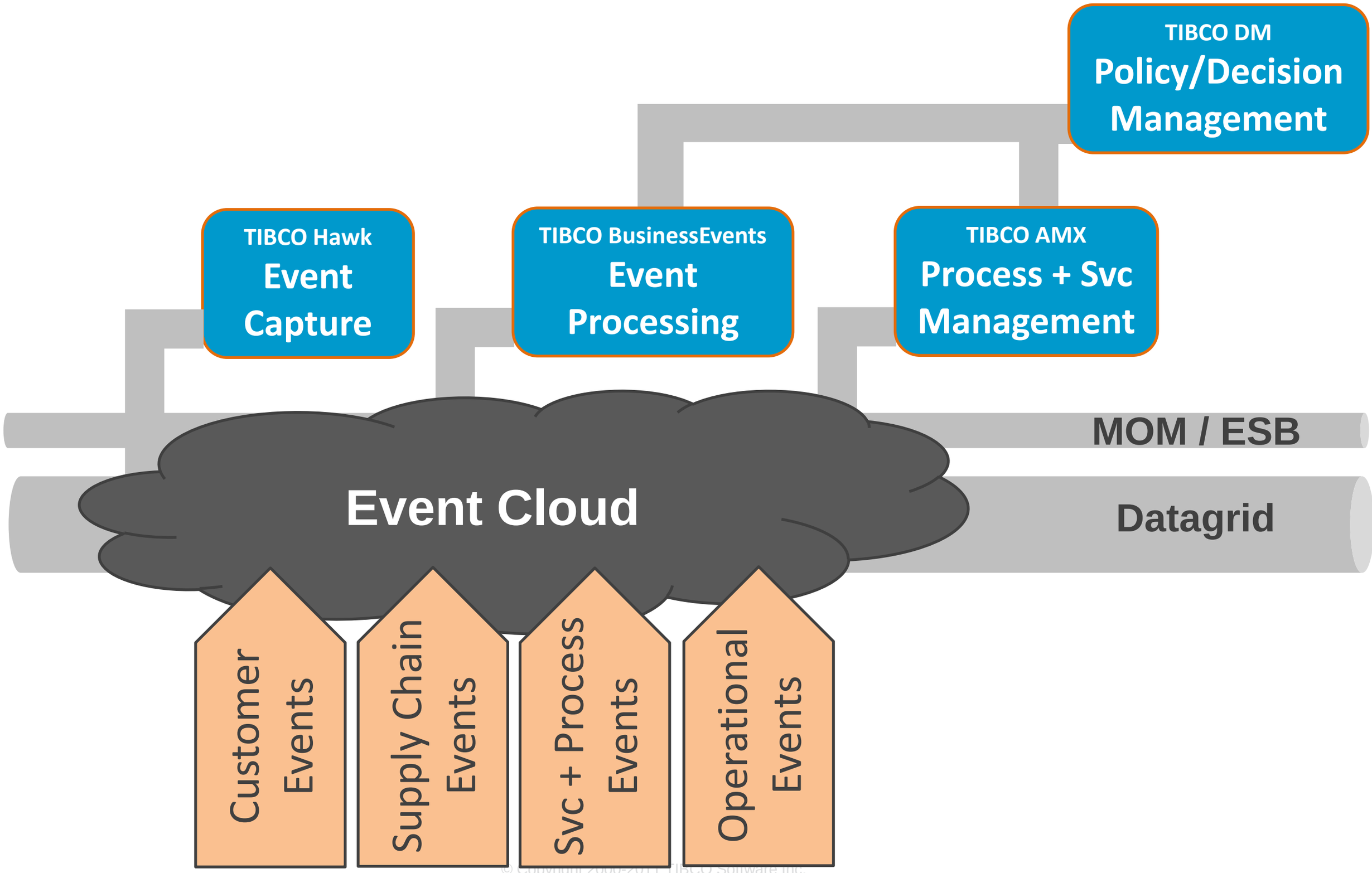
Increasing business performance through:

- Better decisions with real-time analytics
- Faster response to events
- Dynamic adaptation

Pah-to-the-power-of-n!

Where is this leading to?

2011 Rules in Enterprise Architectures

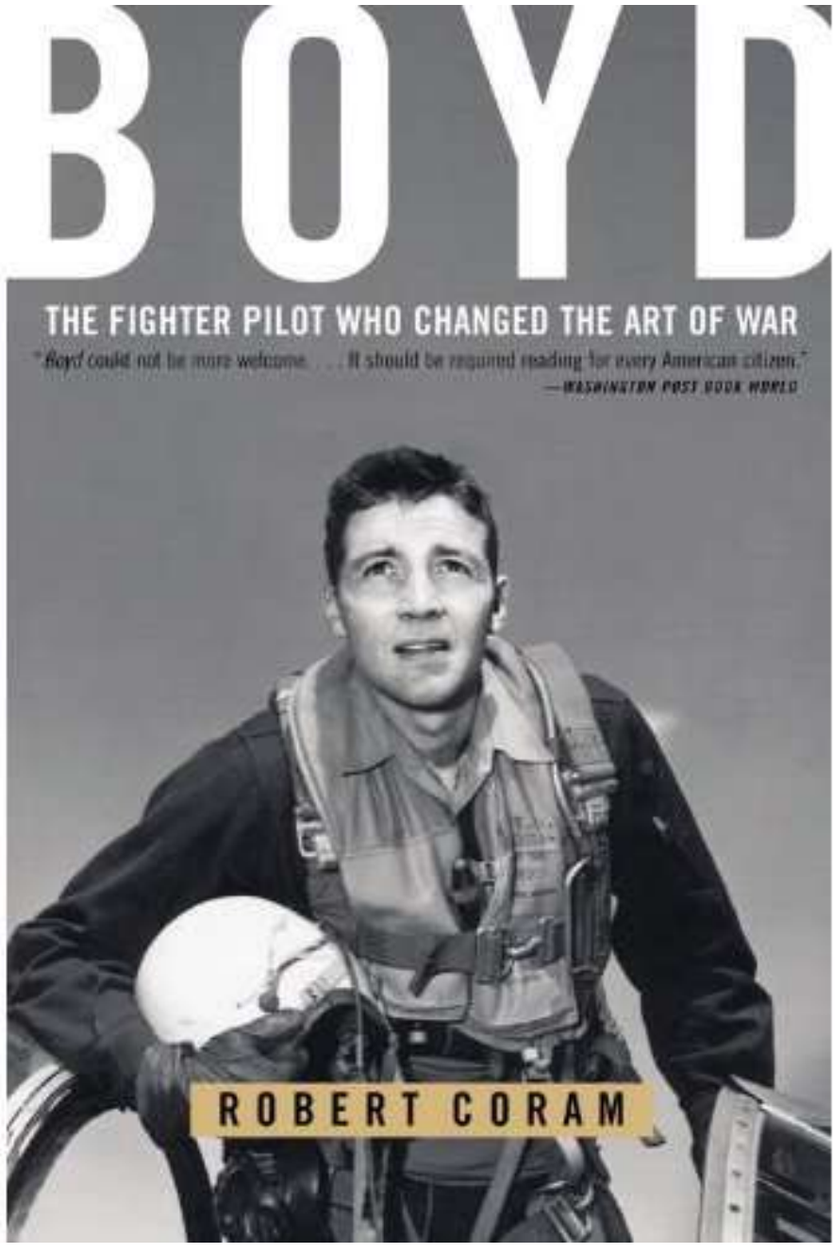


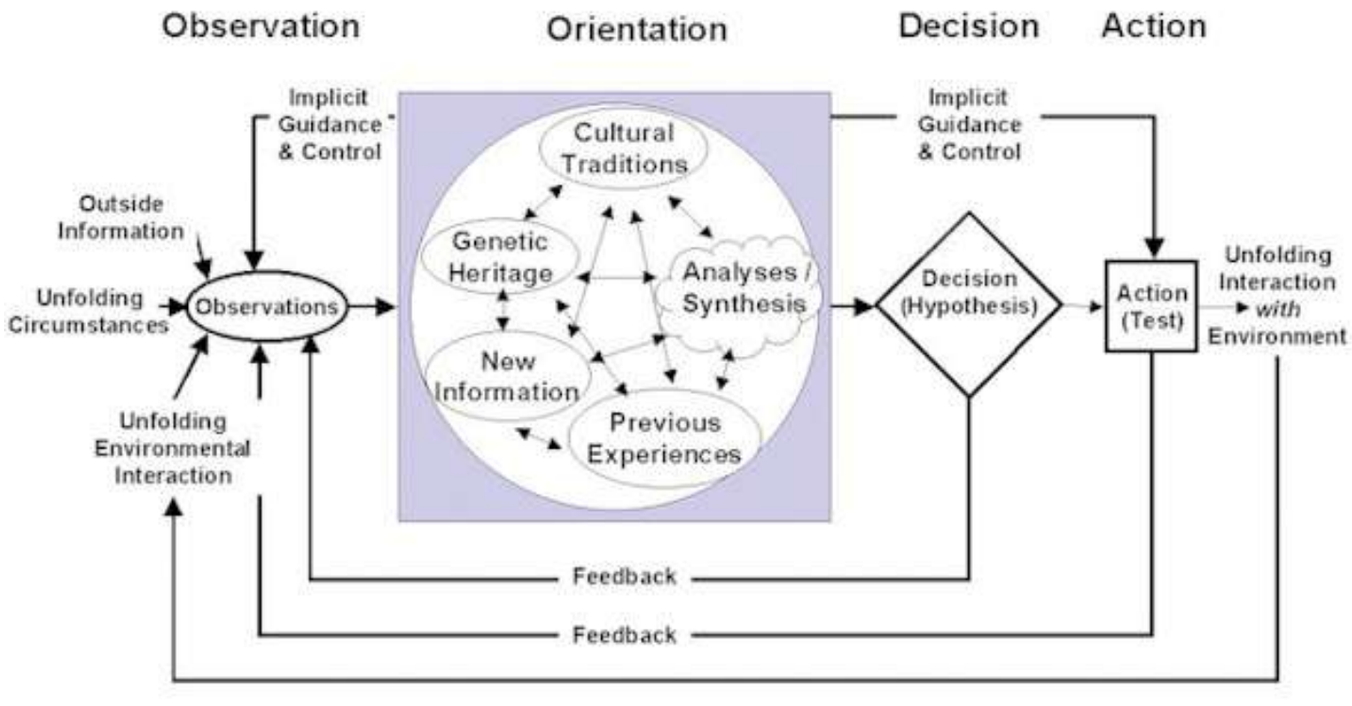
Conclusions

- **EDA / event-driven paradigm matches well with rules technology**
- **CEP-based / event-driven / “real-time” rule engine use growing**
- **Lots of rule development now “in progress”**
- **Consider: what is your organisation’s “Decision Tunnel”?**

Take-aways...

- Not literally though...





a.k.a. Advanced Business Analysis