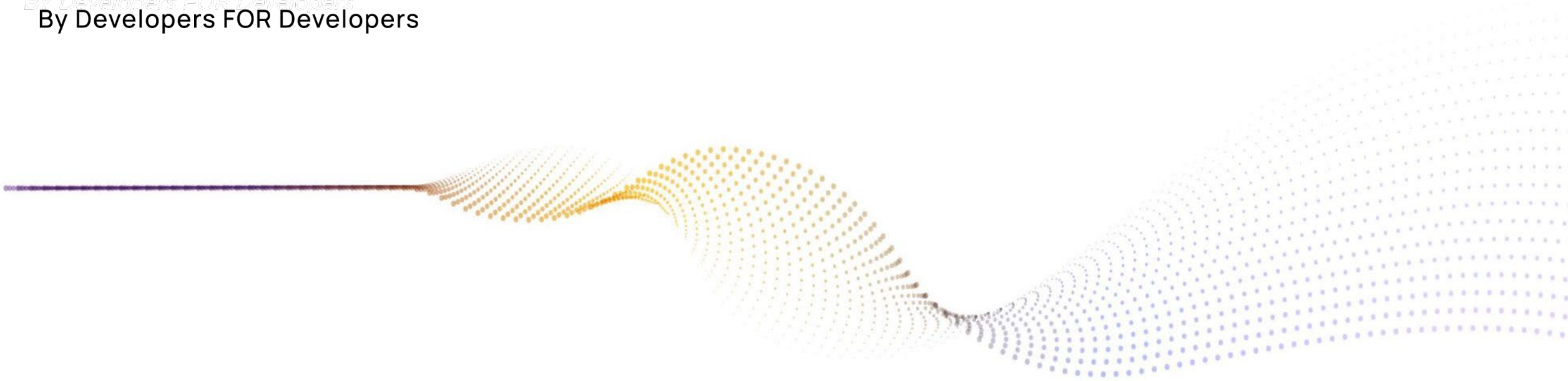
SNIA DEVELOPER CONFERENCE

SDC 25

By Developers FOR Developers

Hyatt Regency Santa Clara, CA
September 15-17, 2025



The Information Bank

A proposal for the next class of storage solving 50-year-old problems managing unstructured data.

www.sniadeveloper.org

The Sad State of Computing Today…

- Computers are stupid. They have no idea what it is they are storing. This is the root cause of 100's of problems with computing, costing the world Billions of dollars each year.

Wow, is that really true? If so, can we do anything about it?

What we are going to cover…

- Review today's Storage Architectures and their Limits
- End Users: Who do we do all this work for? What do they want?
- Their Definition of Unstructured Data
- The Fourth Class of Storage: The Information Bank
- How you and your organization can benefit
- Challenge: Where do we want to go as an industry?

WARNINGS!

- Not easy to assimilate the concepts behind the technology.
  - It often takes more than the initial briefing to fully grasp the scale and scope of this technology.
- Requires a completely different perspective.
- Problems with the industry will be exposed.
- Understand this is totally new class of device.
- Worth the effort!

Bruce's Background

- In the storage business about 40+ years
- Decade at HP – Storage and Operating Systems
- Startups
- MBA
- Formed own startup – Successful exit
- Did a ton of consulting
  - Stopped counting after working with 100 companies…
- Gained a broad and deep understanding…
- Saw a giant gap to fill

Current State of Our Industry

The entire storage industry has been greatly restricted by operating system design decisions made over 50 years ago.

Blocks and Files	Can only build plug compatible peripherals	Strategy limited to bigger-faster-cheaper
(Objects – similar restrictions)		

Significant consequences from this restriction.

Breaking out of these restrictions has huge benefits!

Consequences? Top Ten Problem List

- 80/20 Problem
- Static vs Dynamic
- 7-A's of Security
- Perfect User Assumption
- Locating Challenge
- Manual Labor Costs
- The 100 GUI/AI Agent Problem
- Integration Duplication
- Backup Disaster
- Wrong Information Definition

White paper available

These cost the world Billions of Dollars Every Year!

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80/20 Problem

- Studies over the years have shown that only about 20% of unstructured data is of any value.
- We have no clue which data is the 20%.
- Required to operate on all 100% to ensure we get that 20%.
- With a 3-2-1 backup requirement, that means for every unit of data that is valuable, we require 15X that in storage!
- AI training impact loading the 80%?
- What if the user is renting space online for this?
- There is probably a $Billion every year right here!

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Static vs Dynamic Configurations

- We have no idea how to set any configurations since we have no way of knowing how and when they might change.
- Things like file security, directory security, access methods, search, etc., can only end up being set “wide open”
- Consequences?

  “We can wipe out something important by bumping the mouse on the way to the bathroom.”

The 7-As of Security

The Security Policy of Just about every file on the planet!

1. Anyone
2. Can do Anything
3. To Anything
4. At Anytime
5. From Anywhere
6. Anonymously
7. And Accidentally

That would be like going into your bank and seeing all their cash sitting on a table in the lobby!

How do you make that worse?

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Perfect User Assumption

- Because of our inability to set any restrictions on user behavior, we must assume that every user operates perfectly.
- Raise your hand if you are a perfect user!
  - No, I didn't say perfect "Jerk"!
- When was the last time you heard someone entering a typo at an ATM and wiping out their life savings?
- If that data is valuable, it should be protected, right?

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The Locating Challenge

- What is the primary reason an end user saves something in a file system?
- Its stored so they or anyone else, can find it sometime in the future!
- How people want to locate something changes over time and circumstances.

- “I don’t care if you can get me that file in a nanosecond if it takes me three days to find that *&%#@* thing!”

Manual Labor Costs

- Computers have automated just about everything on the planet with one glaring exception:

  Running Computers!

- Why does everyone that needs computers require highly paid, scarce, manual labor to keep them running?
- Are we even at the steam engine phase in our technology evolution?

100 GUI Problem

- Ever since 4th grade when I started my first company, I've had it beaten into me that you have to have a "Complete Solution" in order to sell anything.
- There are no complete solutions in the storage industry, only components that IT has to put together.
- We are at the "build a steam engine from parts and hiring a welder and pipe fitter hoping that what they come up with won't blow up and kill everyone" stage!

Integration Duplication

- Every data center has to attempt that integration of all the parts.
- Each has to figure out how to do that.
- Each has to then deal with the consequences of when attempting to keep everything working.
- Think of the duplication costs across the planet!

Backup Disaster

- What is the generic “Information Integrity” requirement that every user will come up with when asked?

  If some change was supposed to happen, make a copy.
  If it wasn’t supposed to happen, put it back.
  Do it right now.

- How many backup products can do that?
  - Backup companies have probably been screwed the worst by not knowing what is being stored.

White paper available

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Wrong Definition of Information

- Really? Is this true?
- Yeah it, is. This is the root cause of the huge set of problems users have with computing.
- What is Information?
  - We’re going to show you how end users define it.

Every Feature Is Its Own Industry!

- These are feature-based products that involve unstructured data.
- Over 100 categories, each with many different companies.
  - From Access Controls…to Zero Trust
- Every product in every single category suffers due to the same limitation.
  - At least one of them fatally!

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End Users of Our Technology (Unstructured Information Owners)

- Who: Those trying to run their lives and businesses with your technology. Responsible for that pile of unstructured data.
  - 1 Million ultrasound images, 100,000's documents in a city government, Device Master Records for medical device manufacturing…
- Historically, storage people have been separated from these users.
- I got quite an earful when I asked them how we were doing!
  - We force every computer user on this planet to be "dumbed down" to the level of computing rather than making computers work at the user's level!

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What Do End Users Want?

- Bruce's Law of Customer Requirements:
  - When asked what they want, they will:
  - "Whisper Partial Riddles of Paradoxes" to you!
- Requires a lengthy, iterative process.
  - Did over 1000 releases of the software
  - Sat behind users and watched them struggle
- What did we find?

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End User Requirements
Top 3 (out of 17)

1. Must understand my information and its challenges.
   - This is the first requirement and a deal breaker
   - The main cause for horrible IT/Line of business communication around unstructured data
2. Must understand the dynamics of my information.
   - Keep up!
3. Want all the underlying technology hidden.
   - No manual labor or programming required

White paper available

Their Unstructured Data Definition: The Information Asset

1. The unit of information is a set of Files, attachments, emails, tracking data, metadata, notes, scanned paper, reminders, etc., that, as a collection, are meaningful to users
2. **Driven by its governing lifecycle**
   - Management requirements can change drastically and abruptly.
   - This changes our world….

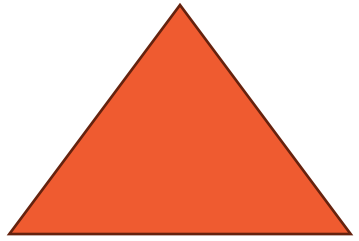
White paper available

Example: Simple Contract

Possible Contract Components	
The Word document	The PDF version suitable to send to the client
The client name	Client contact information
The type of contract	The value of the contract
Template that was used to create the contract	The audit log of everything that happened to it
Previous versions of the contract	Rejected versions
List of people who need to approve it	The sales rep who created it
The costing spreadsheet used to create sections	Scanned signature page
List of people who have not yet approved it	List of people to be notified when approved
Proof that people actually approved it	Proof that the customer received the copy
A cryptographic signature to detect tampering	A mirrored copy for protection
A copy to put up on the website	Login of users who can access it via the website
Copies of important emails from the customer	Any related photos, sketches, or drawings
References to previous contracts	Customer account number
Validation script to run against the contract	How long people are given to approve or reject it

Core Construct - Asset Container

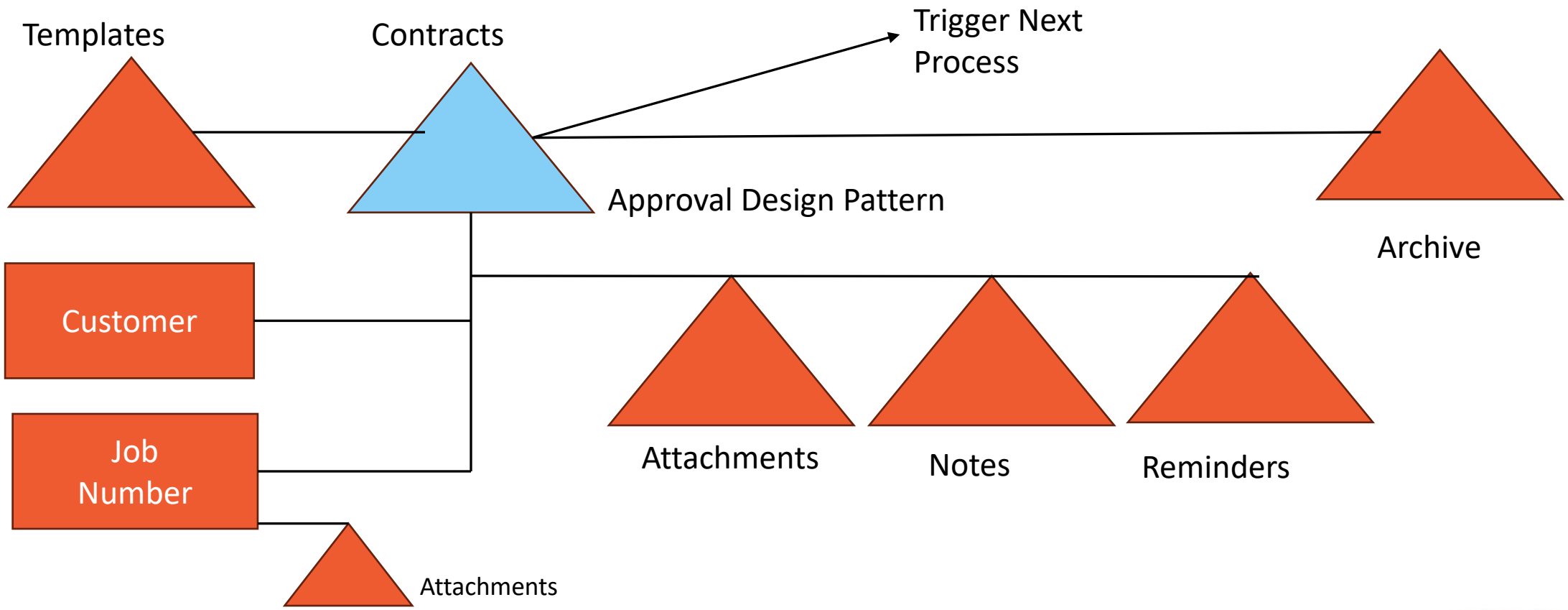
- Collection of assets with the same requirements
- Based upon process design patterns
  - Implement a specific process pattern
  - Configurable (can tailor to needs)
  - Reusable across processes, companies, industries
  - A very small number of these process patterns
- Building blocks
  - Provide methods to hook them together
- Specify (vs program) configuration with EQAL



ERD – Container Based Design

Entity
Relationship
Diagram

Focused on what users know



The Information Bank – The Next Class Of Storage

- Protects and manages your digital valuables – Like a bank!
  - Easy concept to understand
- Natively Implements Information Asset and Asset Containers
- Drives the asset dynamics via business requirements
- Enormous Advantages
  - Can solve those 100's of problems!
- IT overhead is virtually eliminated – Drastically lower TCO!
- Platform for technology integration

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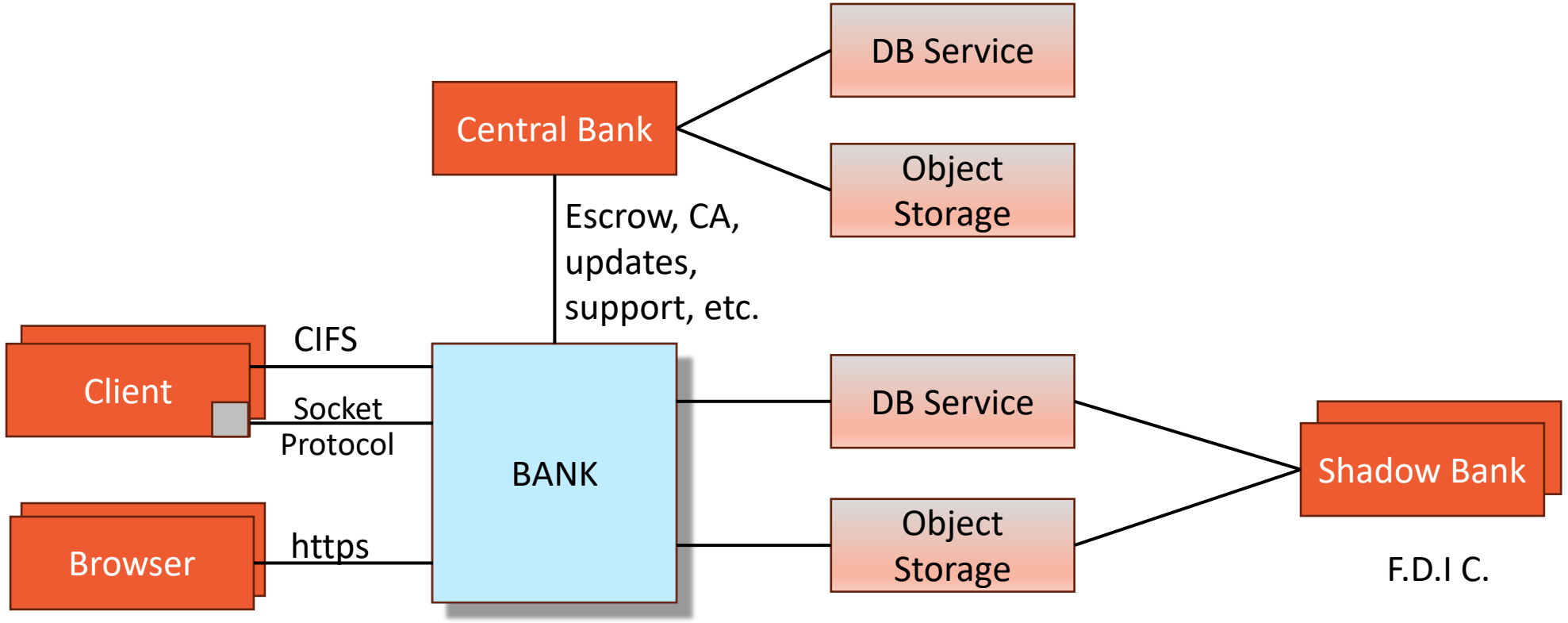
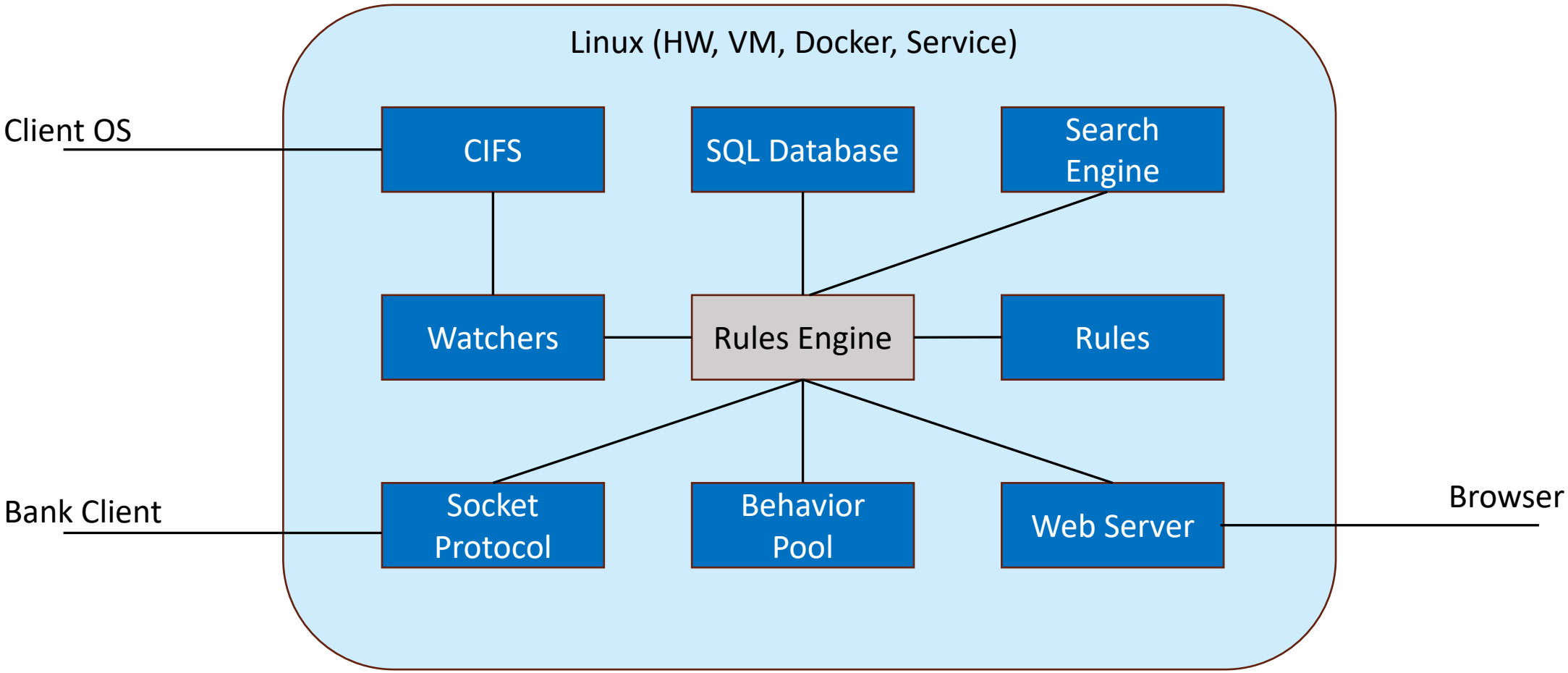
Topology



Bank Internal Architecture



Rules Engine

- Event based – Business Functions Performed on Assets
- Each event has a sequence of “behaviors”
- Each behavior does some fundamental function
- The sequence implements the event requirements
- Threading model is key to managing the file system/networking/operating system synchronization.
- Designed for function reuse and technology integration
- “B.A.S.E” = Behavior Actions of Synchronized Events

Advantages Summary

Business Process Automation greatly improves end user productivity. The reason we do all this work!

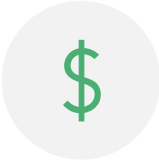
By solving huge numbers of problems, the bank can reduce the outrageous global costs of unstructured data management.

Key technology is fully integrated before being sent to the customer. (Complete Solution)

Platform for technology advancement

Existence of a system proves it can be done

Departmental Advantages



CEO- Revenue Growth, Cost Reduction, Simple Strategy

CTO – Integration Platform, End User facing products, AI delivery

Engineering – Faster development, Topologies, Code Base

Marketing – Product differentiation, End User Focus

Sales – Sell to customer's business leaders, huge upsell opportunities

Finance – Higher Margin, higher priced products at lower costs

Security – Security designed in. Regulatory and Compliance

Support – Self auditing and correcting system, connectivity lowers complexity and TCO

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Advancing Unstructured Data

Structured Data

- Formal Definition
- System to hold data - DBMS
- Based upon set theory
- Tables
- A.C.I.D Behaviors
- Views
- Triggers
- Stored Procedures
- Language (SQL)
- Standards
- Dedicated Industry

Unstructured Data

- Formal Definition
- Information Bank
- Based upon parallel synchronized events
- Containers
- B.A.S.E (Behavioral Actions of Synchronized Events)
- Views
- Triggers
- Stored Procedures
- Language EQAL
- Standards?
- Dedicated Industry?
- Regulatory Oversight?

Now they are on equal footing!

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Traps!

- These are assumptions you have that, if true, invalidates the entire technology. But when tested, the assumptions are false!
- Examples:
  - Yes, it does work
  - No, Bruce is not the biggest idiot in the universe!
  - No, you don't need to change any OS, file system, driver, storage, or application code.
  - Yes, Information Owners know way more about this than you do.
    - There are nearly an infinite number of Information Assets
    - Any one of them can have enormous value/risk.
  - No, your processes are not that unique
  - Whitepaper that shows 36 of these!

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What can this mean for our Industry?

- Differentiated Product Lines with higher margins
- New Markets
- New Information Banking Services
- New product topologies
- Simple to Explain/Use
- Focus on end user productivity
- Manage content of what's being stored
- Foundation for company/industry growth
- Vastly expands the utility of storage libraries (tape, optical, DNA)
- Artificial Intelligence?

AI and The Information Bank – A Winning Pair

- The key to AI is data
- AI can benefit from knowing
  - If there is data
  - Where it is
  - Validity
  - Identity
  - History (when changes were made by who)
  - Context
  - Lifecycle
    - Allowable functions
  - Relationships among the data

- AI Projects and Data Scientists struggle attempting to determine these to maximize the training success
- Ongoing struggle

- The Information Bank can store, maintain, and provide these much-needed benefits to maximize AI success.
- A delivery mechanism to the end users.
- Let AI run the Bank!

Could be the #1 reason for the Information Bank….

Who is In2Bank?

- Bruce and his Buddies
- Self Funded
- Have an Information Bank Product
- Is in customer's hands in production
- We have proven out the technology
- WAY bigger than we thought when we started
- Options moving forward?

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Steps For Technology Integration

- Exposure
- Inquiry (White papers, etc.)
- Education and Demonstration
- Use it
- Prototype Needs Assessment – Common failure point!
  - What is in the prototype and what is in later version
- Prototype Development
- Prototype – Education and Evaluation
- Product Specification
- Product Development

My Goal: Facilitate this Sequence

- In2Bank, other startups, VCs, even a single company?
- It needs to be industry-wide
  - Needs definitions, consistency, standards, etc.
- SNIA is uniquely capable of accelerating this advancement
- White Papers – (email brucet@in2bank.com and I'll send you the packet)
- Access to the product
- Consulting services?
- Source?

Call to Action

- Now you know the problems users are facing and their costs.
- Now you know there is a solution for all those problems.
- Now comes the difficult question: What are we going to do about it?
  - It may not be our “fault”, but is it our responsibility?

- NOT an easy question to answer!
- Requires further discussion!

BOF (See Schedule)

- Everyone else wants to know what you think…

Contact Info

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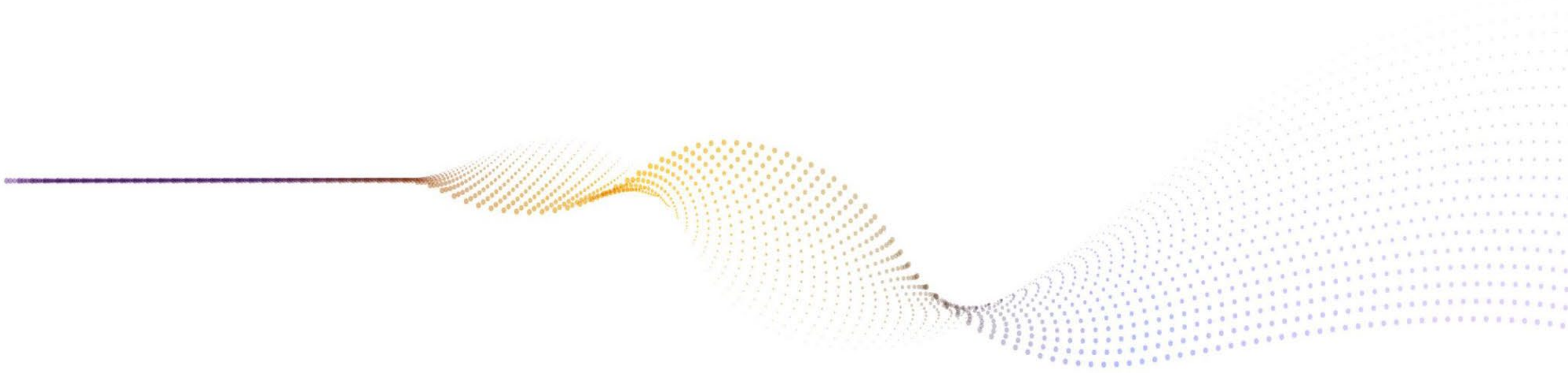
  - Send me an email and I'll make sure you get the white papers.
- 303-912-3172 (Cell)
- www.in2bank.com
- Recorded product demonstration:

  https://www.in2bank.com/demo.mp4



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