Enterprise solutions with blockchain: Use cases from Nestlé, Sony Music, and Workday

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Agenda

Introduction to blockchain

Workday: Digital credential management

Sony Music: Simplifying music contracts

Nestlé: Increasing product transparency

Conclusion
Blockchain enables decentralized trust
What is Amazon Managed Blockchain

Amazon Managed Blockchain is a fully managed service that makes it easy to create and manage scalable blockchain networks using popular open source frameworks: Hyperledger Fabric and Ethereum.
Blockchain in many industries

- Proof of Ownership
- Documents/Contracts
- Digital Security Trading
- Food and Beverage
- Mortgage Loans
- Voting Mechanisms
- Patient Records
- Corporate Governance
- Customer Rewards
- Insurance

- Capital Markets
- HCLS
- Real Estate
- Legal
- Agriculture
- Gaming
- Transportation
- Supply Chain
- Digital Advertising
- Power/Utilities
- Retail
- Content Rights
Workday Credentials and Amazon Managed Blockchain

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The Leading Enterprise Cloud for Finance and HR

2,800+ customers, over 70% live

98%

Customer Satisfaction

40%+ of the 500 FORTUNE 500

39,000,000+ workers under contract

#4 100 Best Companies to Work For, *Fortune*

#2 Best Workplaces in Technology, *Fortune*
2019: Keynote Announcement

Workday Credentials
Introducing Workday Credentials

<table>
<thead>
<tr>
<th>Credential Templates</th>
<th>Details</th>
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<tbody>
<tr>
<td>Employee of the Month Award</td>
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<tr>
<td>Committee Membership</td>
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<tr>
<td>Employment History</td>
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<tr>
<td>Systems Administrator Certification</td>
<td></td>
</tr>
<tr>
<td>Employee Home Address</td>
<td>Employee Name</td>
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<tr>
<td>Employee Email</td>
<td>Bi-Weekly Paycheck</td>
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<tr>
<td>Achieved Skills</td>
<td></td>
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<tr>
<td>Solution Architect Certification</td>
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![Workday Credentials interface](image-url)
Workday Credentials for Enterprise

- Issue and verify credentials
  - Through Workday HCM
  - Directly via the platform
  - Through APIs
- Credentials are backed by blockchain
- Built on open standards
WayTo for Individuals

- New application (iOS + Android)
- Owned by the individual
- Follows the user throughout their career

Allows individuals to:
- Claim credentials once issued
- Securely hold credentials, on device
- Securely share credentials
Digital Credentialing

- Passport
- Transcript
- Pay Stub
- ID
- Awards
- Certifications
- Education
- Experience
- Skills
- Involvement
Certified University
Certifying your future begins here.

Oil Rig Safety Certification Test

What is your email address? *

[Dropdown list with email addresses]
Anchoring Data to a Blockchain

Data Is Shared

Data Authentic
User-Controlled Architecture

Storage

Protocols

Identifier Registry (Ledger)

Data Is Shared

Control

Data Exchange

Trust

Id => pub

Schema

Id => pub

Schema
Why Amazon Managed Blockchain?

• Leverage our strengths
• Ease adoption for our partners
• Align with our technology platform
• AWS is a great teammate
Workday Credentials

Issuer Apps

Visual Tools/Config

APIs

Metadata

Verifier Apps

Hyperledger Fabric on Amazon
Managed Blockchain
Workday Credentialing Consortium
Next Steps for Credentials

• Limited availability release in 2020

• Working with early adopters now

• Integrating more deeply into existing Workday products
Next Steps for Amazon Managed Blockchain

• Uptake improved monitoring and visibility
• Get consortium members live in production
• Scale up transactions and use
• Pioneers and partners
Tomoyuki Shirakawa
Solutions Architect/Security Specialty
Agenda

Corporate profile

Challenges for music contracts in Japan

Building with Amazon Managed Blockchain

Architecture
Corporate profile
Corporate Structure

SONY

Sony Corporation

Sony Corporation of America

Sony Music Group

- Sony Interactive Entertainment Inc.
- Sony Pictures Entertainment Inc.
- Sony/ATV Music Publishing LLC
- Sony Music Entertainment Inc.
- Sony Music Entertainment (Japan) Inc.

Game & Network Services Segment
Pictures Segment
Music Segment
## Sony Music Entertainment (Japan) Inc.

| Represented Director Chairman CEO | Michinori Mizuno  
| Representative Director COO | Shunsuke Muramatsu |
| Address | 4-5 Rokuban-cho, Chiyoda-ku, Tokyo, 102-8353 Japan |
| Founded | March 1968 |
| Number of Employees  
(Consolidated) | Approximately 2,700 |
| Description of Business | Holding company dedicated to the management and administration of its subsidiary companies |
| Shareholder | Sony Corporation100% |
| Consolidated Annual Sales | 3,859 oku-yen (3.3 billion USD)  
(Fiscal year ending March 31, 2019) |
Challenges for music contracts in Japan
Contract workflow: Ideal

- Composers want to deliver their content to consumers
Contract workflow: Reality

1. A composer creates a contract with a publisher to release content
2. The publisher creates contracts with servicers
3. Servicers provide the content to consumers
Contract workflow: Reality

- Contracts are created and shared as paper documents
Contract workflow: Reality

Consumers

Servicer

Composers

Publisher

Publisher

Central Copyright Authority

Broadcast Media
Contract workflow: Reality

Complex contract flow

Using paper contracts increases management and labor costs

Each organization operates its own management system based on non-standardized specifications
Is there a better way?
Blockchain can improve the workflow

- Consumers
- Servicer
- Composers
- Publisher
- Broadcast Media
- Central Copyright Authority

Blockchain Network
Benefits of using blockchain

Simplifies the complex contract workflow

Reduces management and labor costs

Each entity can own an up-to-date immutable dataset of contracts
Building with Amazon Managed Blockchain
Why we chose Amazon Managed Blockchain

• Support for Hyperledger Fabric
• Ease of use
• Low cost
• Integration with other AWS components
Hyperledger Fabric

Need to ensure transactions are reliable, secure, and immutable across the Japanese music industry rather than having a specific organization centrally manage this data

Hyperledger Fabric enables a permissioned blockchain network across the industry

Immutability and transparency

Hyperledger Fabric allows each organization to own an immutable copy of the data

Permission and governance

Hyperledger Fabric offers access control on blockchain data

Open source and enterprise grade

Hyperledger Fabric is a leading enterprise blockchain framework
Ease of use

Deploy a blockchain network in just a few clicks

Use blockchain resources in minutes

Managed components and auto scaling peer node auto scaling storage reduces maintenance effort

VPC endpoints make it easy to build applications securely in VPCs
Low cost

Amazon Managed Blockchain helped us achieve 75% cost savings over running it ourselves on Amazon EC2

<table>
<thead>
<tr>
<th></th>
<th>Amazon Managed Blockchain vs. self-managed on Amazon EC2</th>
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<tbody>
<tr>
<td><strong>Implementation phase</strong></td>
<td>90% cost savings</td>
</tr>
<tr>
<td><strong>Ongoing phase</strong></td>
<td>75% cost savings</td>
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Integration with other AWS components

Provisioning: AWS CloudFormation

CI/CD: AWS CodeCommit, AWS CodeBuild, AWS CodePipeline

Web application interface & authentication: Amazon API Gateway, AWS Lambda, Amazon Cognito

Data store: Amazon S3, Amazon DynamoDB

Monitoring: Amazon CloudWatch

Security: AWS KMS
Architecture
Composers ask Publisher A to manage their rights registration.
Publisher A writes copyright information to Amazon Managed Blockchain using a web API.
Another publisher, Publisher X, writes information to the same contract dataset using a different VPC endpoint.
• “Rights holder Y” also writes information to same network via another VPC endpoint
Architecture

Solution architecture
Who is Nestlé?

Nestlé is the world’s largest food and beverage company. It is present in 190 countries around the world, and it has 308,000 employees.

We are also the biggest procurer of coffee globally.

We have a significant role in value creation of coffee industry to ensure long-term, high-quality.
Innovation challenges

How do we deliver superior tasting products, and what role does technology play?

Deliver **superior** taste  
**Reward** best practice  
**Promote** collaboration
Business opportunity and technical challenge

Share coffee tasting attributes like location, plantation type, processing method, coffee grade, freshness and roasting level

Real-time data collaboration help better anticipate demand

Showcase best in class practices from farming through to packaging

Consumer value  

Real-time data collaboration

Industry needs
If your coffee cup could speak, what would it say?

**Taste**
Consumers want to know what makes great coffee

**Accessible**
Coffee is a seasonal product but the demand is consistent and growing

**Sustainable**
Consumers want to make informed purchase decisions
Data collaboration challenges today

Hard to source meta information (lag data)

Customer
Meta data

Retailers
Meta data

Easy to source meta information (real-time data)

Distributors
Meta data

Roasting factory
Meta data

Supplier A
Meta data

Supplier B
Meta data

Farm A
Meta data

Farm B
Meta data

Packaging Supplier A
Meta data

Packaging Supplier B
Meta data
Why chain of origin?

Brand mission: provide consumers a transparent process that provides unique flavor profiles and distinct user journey

Personalization
Utilising technology to provide a fully trackable and 1:1 personalised user journey

Collaboration
Using data collaboration as a method to deliver artisan coffee that talks to its provenance

Freshness
Fresh ingredients and unique production process to provide consumers with a flavor experience like no other

Subscription
Creating a direct to consumer offer that giving better control over quality and user experience
How AWS solves Nestlé’s challenges

Real-time data collaboration allows us to deliver a premium coffee experience by connecting consumers with the artisanship of coffee

Blockchain qualities:
1) Method for partners to access and query the ledger
2) Exhausting process that’s auditable
3) Verification process between facilities and partners
Product tracking demo

How we manage the facilities
Nestlé’s architecture
EXPERIENCE EXCEPTIONAL

Visit the Quad in the Aria for a one-on-one demo or buy online: www.chainoforigin.com
How will you leverage decentralization?
Blockchain Beer Pub and Café at the ARIA

- Learn how blockchain can provide the end-to-end visibility that today’s supply chains need

- Try single-origin blockchain-powered coffee from Nestle: 9 a.m. to 3 p.m.

- Happy Hour every evening: 4 p.m.-6 p.m.

- Location: The Quad at the ARIA, Pinyon Ballroom, Booth 100

Plus, answer trivia and win an Amazon Managed Blockchain shirt!
Attend other Managed Blockchain Sessions

**BLC204 – Breakout - Enterprise solutions with blockchain: Use cases from Nestlé, Sony Music, and Workday**
12/3, 4 PM, MGM Level 1, Boulevard Ballroom 158

**BLC301 – Breakout - Dive deep into Managed Blockchain**
12/4, 4.45 PM, MGM Level 3, Premier Ballroom 313

**BLC301 – R1 Breakout - Dive deep into Managed Blockchain – REPEAT**
12/5, 1:45 PM, Bellagio, Grand Ballroom 5 RED

**GPSTEC339 – Integrate Managed Blockchain & Amazon QLDB in your solutions portfolio**
12/4, 1:00 PM, Bellagio, Grand Ballroom 5 Green

**BLC201 – Workshop - Building your first blockchain application with Managed Blockchain**
12/5, 12:15PM, MGM Level 3, Premier Ballroom 311

**BLC302 – Workshop - Build an interbank asset-transfer application with blockchain**
12/4, 9.15 AM, MGM Level 3, Premier Ballroom 318

**BLC206 – Chalk talk - Smart supply chain management systems based on blockchain, IoT & AI**
12/3, 2:30 PM, Aria Level 3 West Starvine 4

**BLC207 – R1- Chalk talk - Trade finance goes high tech using Amazon Managed Blockchain - Repeat**
12/4, 5.30 PM, Bellagio Ballroom 7
Thank you!

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aws.amazon.com/managed-blockchain
Please complete the session survey in the mobile app.