Building an Enterprise Private Blockchain on Salesforce

UNDERSTANDING BLOCKCHAIN AND ITS ROLE IN THE ENTERPRISE

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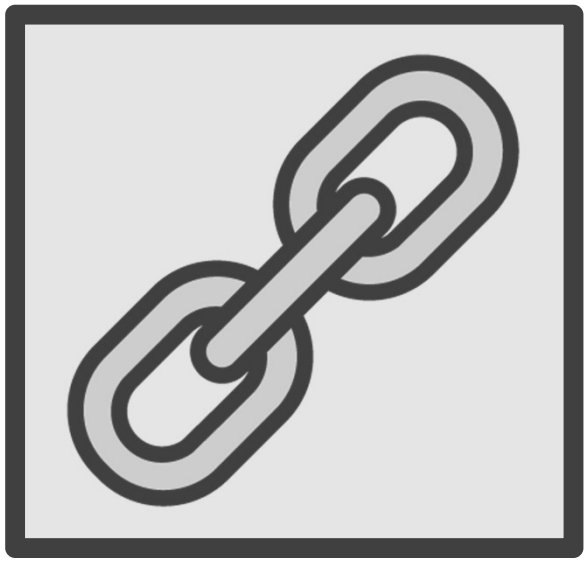
Our Journey Begins



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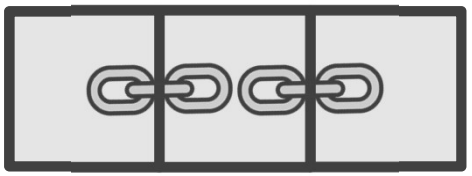
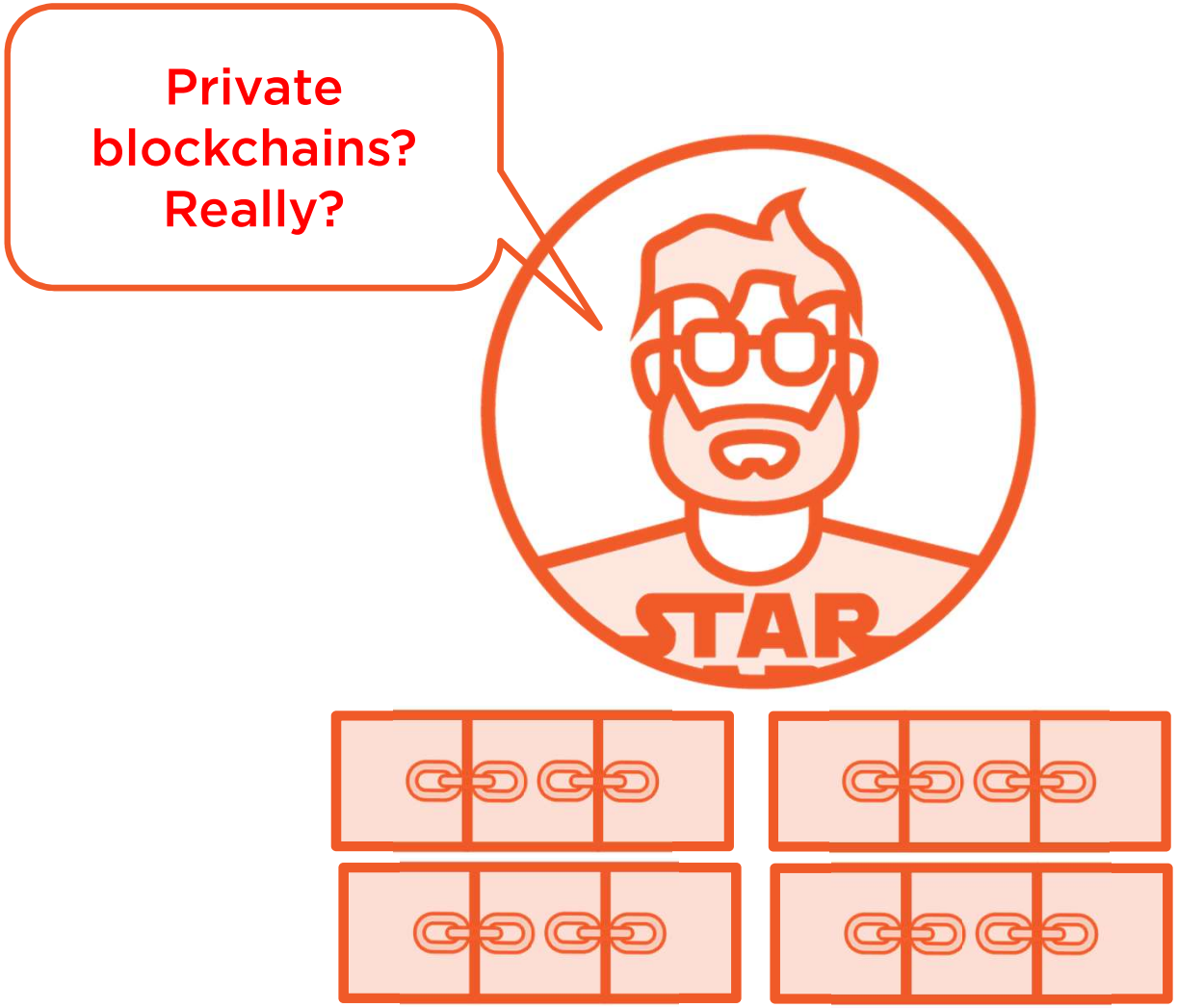
Ideal Enterprise	Real Enterprise
Everyone gets along	Politics and friction
Well organized	Chaos!
Our data is accurate and reliable	We’re not sure of our data at all
You can trust us	Most of us mean well, but…




Private
blockchains?
Really?
STAR

Welcome to the Laboratory

It takes time to discover best practices

This is an early experimental implementation

You are about to see the results of our extensive research. Prepare to be awed!

Course Overview

Introduction to blockchain

Scenarios for private blockchains

Implementing a blockchain

Variations and next steps

Do not stress!

Blockchain is simpler than you might expect

A Brief Introduction to Blockchain (It's a Ledger!)

Ledgers Are Everywhere

Transaction	Date	Amount
Groceries	1/5	-89.00
Cable TV	1/15	-285.00
Internet	1/16	-60.00
Deposit	1/18	1500.00
Restaurant	1/20	-36.00
Gas	1/28	-28.30
Rent	1/31	-1200.00

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Restaurant	1/20	-36.00
Gas	1/28	-28.30
Rent	1/31	-1200.00
Correction (Cable TV)	2/8	10.00

Ledgers in the Enterprise

Sales	Date	Quantity	Amount
Widgets	1/5	15	1500
Gadgets	1/10	8	400
Odds	1/14	12	750
Ends	1/18	16	380
Stuff	1/20	20	1200

Ledgers in the Enterprise

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Hash Functions

Any input value always results in the same output value

A small change to the input value results in a large change to the output value

It is impossible to determine the input value given the output value

Ledgers in the Enterprise

Sales	Date	Quantity	Amount	Hash
Widgets	1/5	15	1500	eEH7H5K5kZTKgY1BDLCUMHMbYoU=
Gadgets	1/10	8	400	q397IVMw3I3Nf4rj2Wif+jK/ENU=
Odds	1/14	12	750	QExzXyHQD+45oTIQ1UhE887Aacc=
Ends	1/18	16	380	wwdJz1vHTHw6flyEEVEoJelTM6g=
Stuff	1/20	20	1200	c+5JWL21oFYCnr05uKu6o9vA8zM=

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Gadgets	1/10	8	300	4mlz5u6Kuc2Ms/IH0bkPANJmnv8=
Odds	1/14	12	750	QExzXyHQD+45oTIQ1UhE887Aacc=
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Odds	1/14	12	750	aYog2EwZ4Ss6M9spiLLKmGrA4go=
Ends	1/18	16	380	07s8J4us6Btj6SI3l1ODMtFaplM=
Stuff	1/20	20	1200	9XYSpm5M7sYyyHTfXcp1Oj/QhTk=

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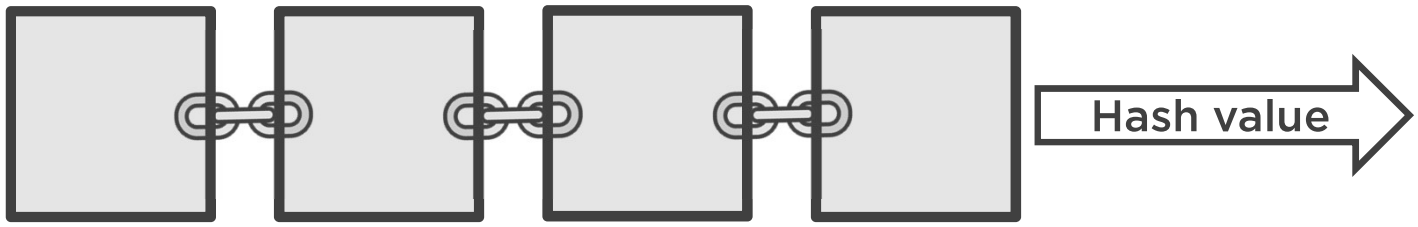
The Secret of Immutability

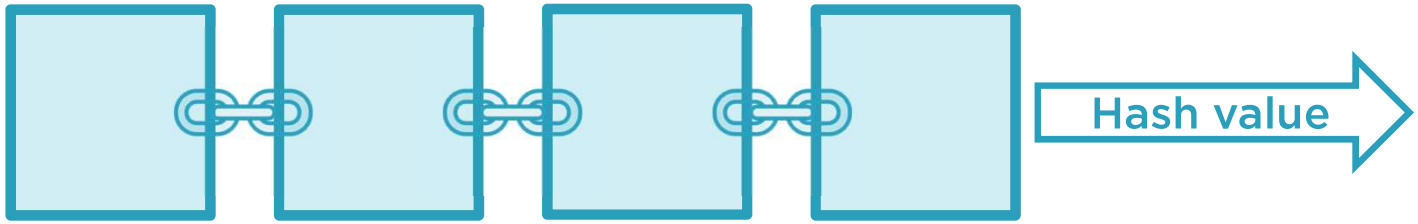
Make values hard to change

Make changes easy to detect

An Amazing Blockchain Fact



If the hash value of the last block matches...
All of the blocks match!



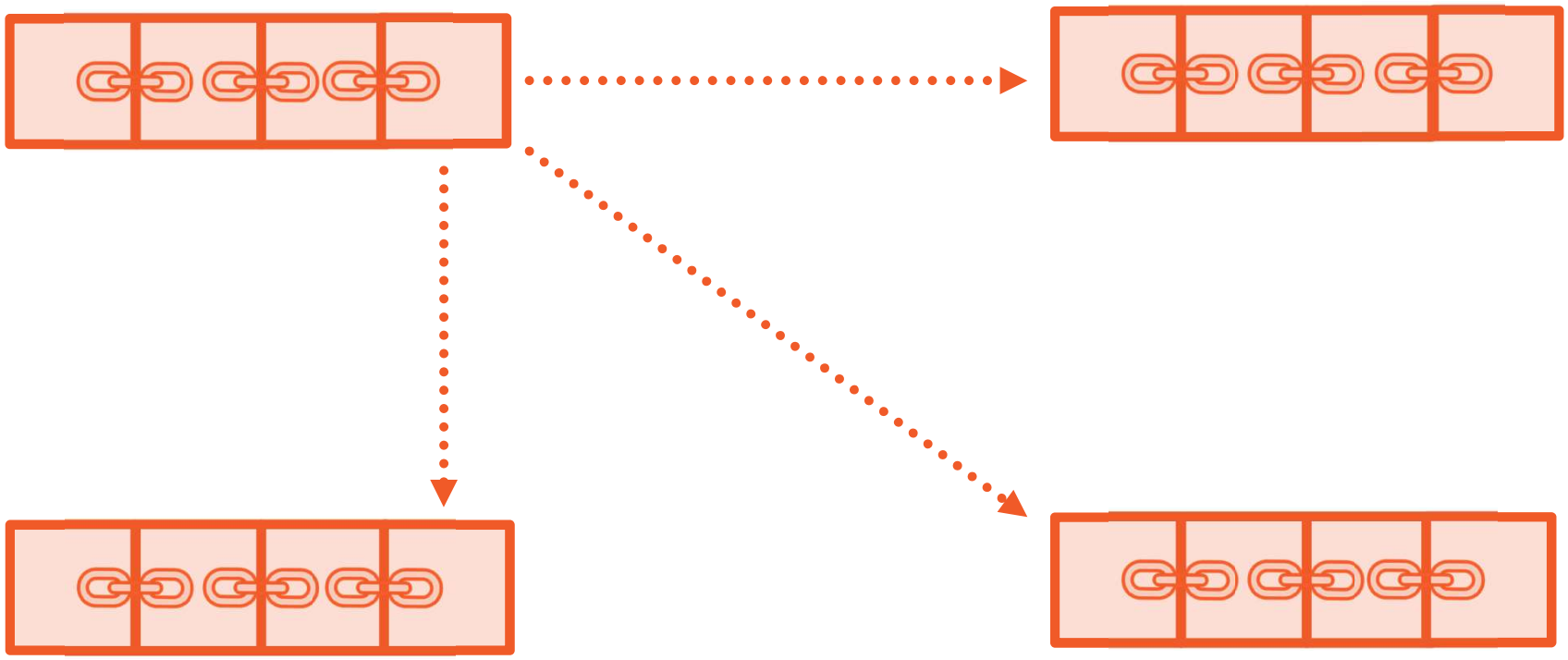
The Secret of Immutability (Rephrased)

Make it hard to modify the blockchain

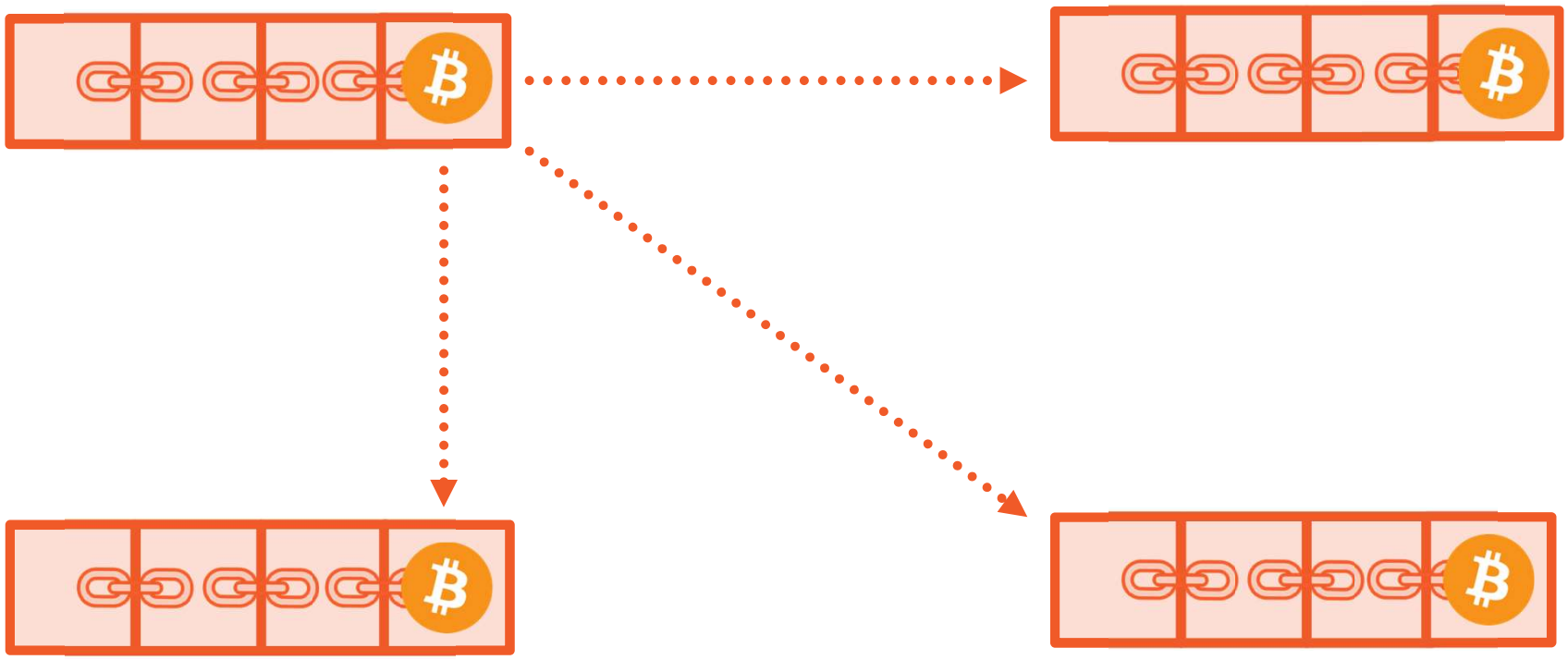
Make it hard to lie about the hash value of the last block

Distributed Blockchains and Cryptocurrency

Distributed Blockchains



Distributed Blockchains



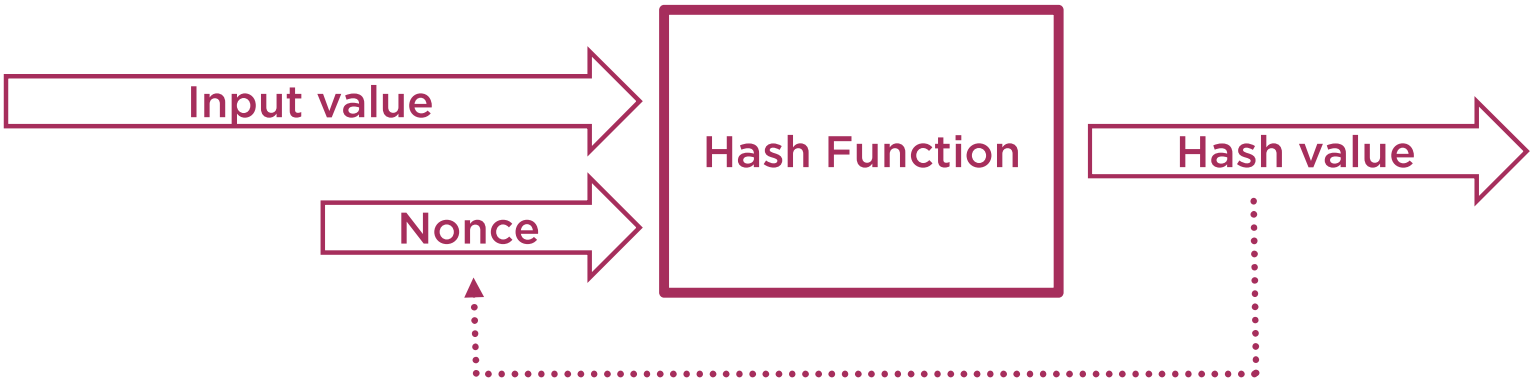
A Distributed Public Blockchain Must...

Keep ledgers synchronized

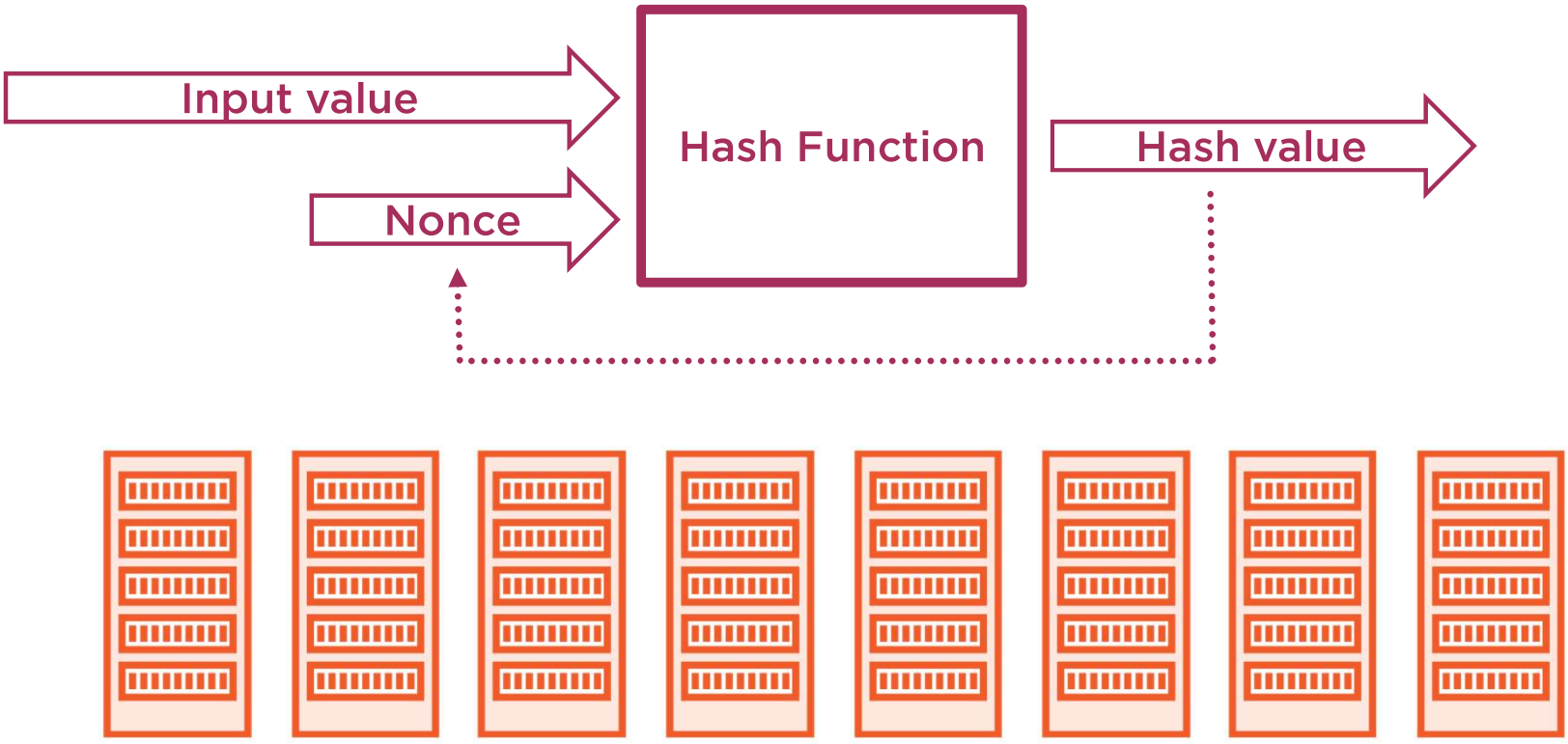
Validate new blocks

Detect tampering

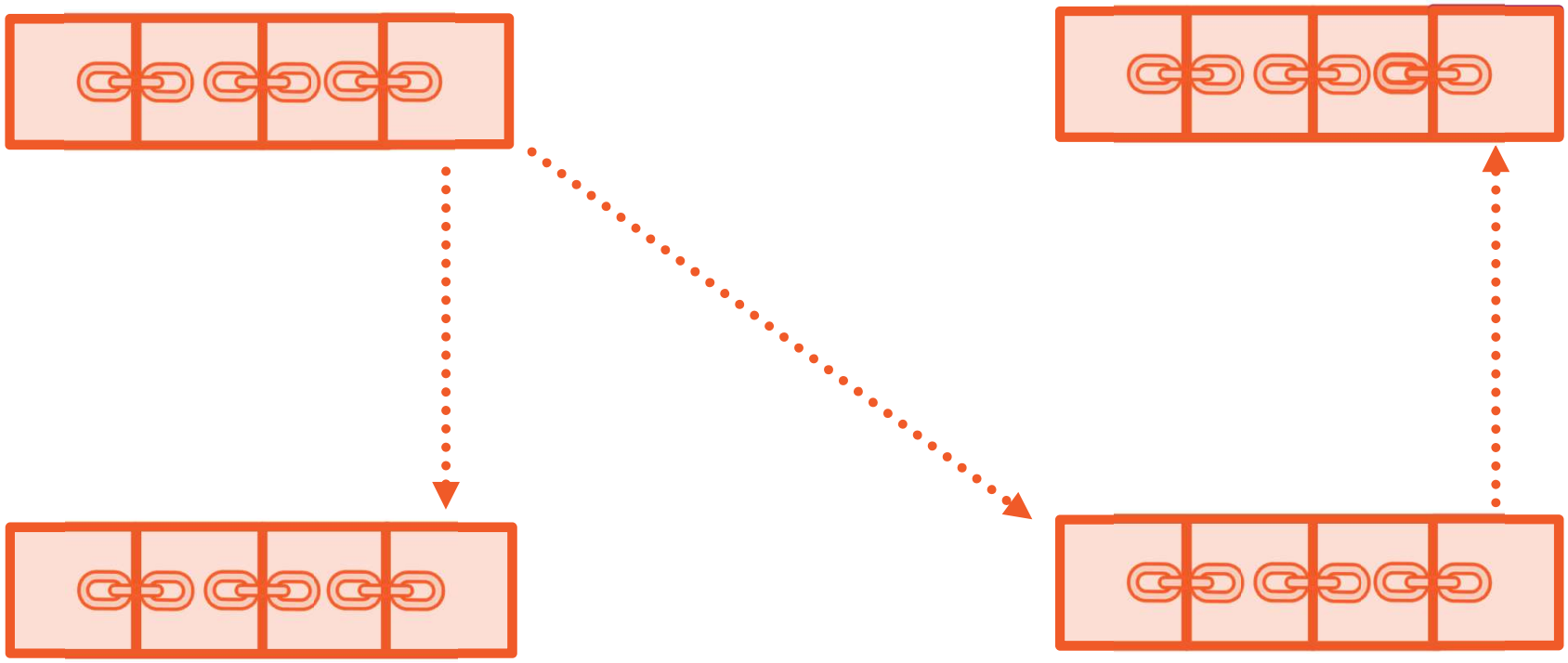
Proof of Work



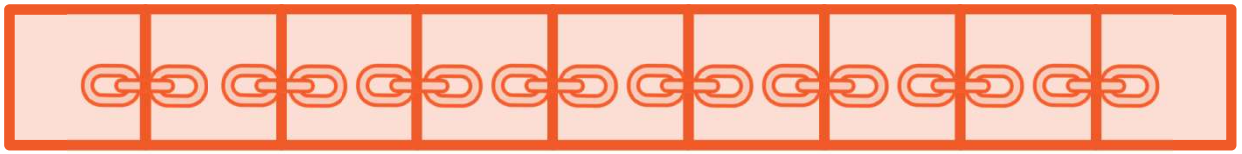
Proof of Work



Distributed Blockchains



Recalculating a Blockchain



Calculation ⋯⋯⋯

Distributed Blockchain with Proof-of-work

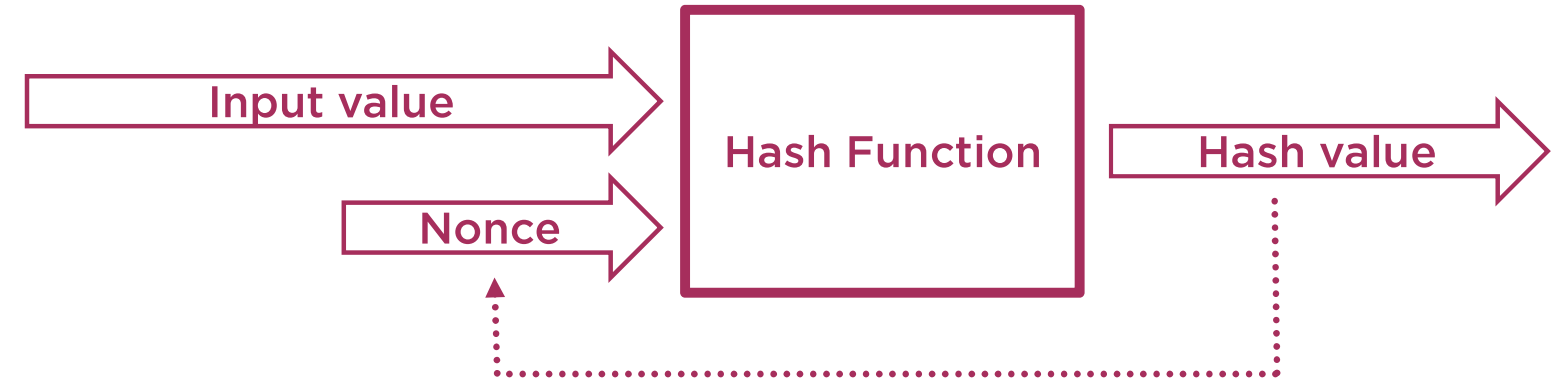
It's very hard to recalculate the blockchain

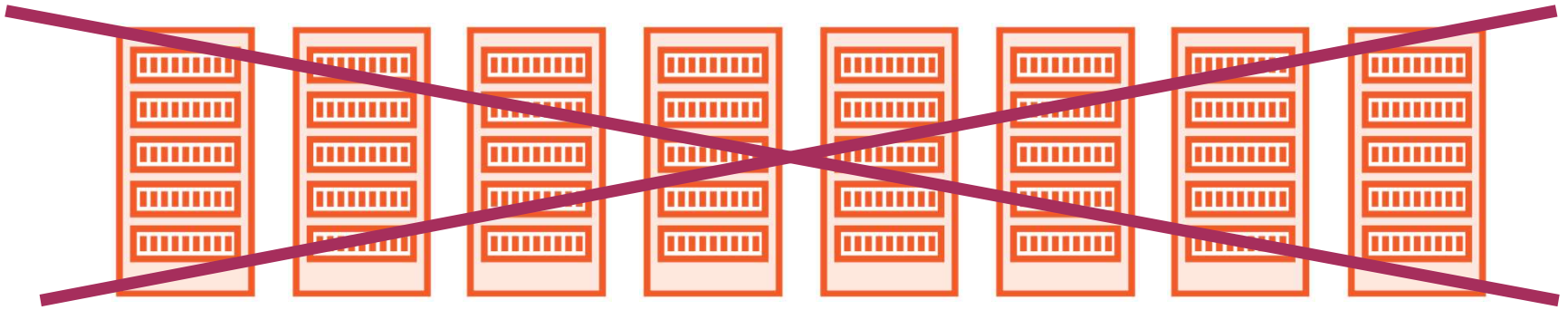
Everyone has a copy, so tampering is easily detected

If a given block in two ledgers has the same hash value, the both ledgers to that point are identical

Distributed Blockchains and the Enterprise

Proof-of-work





Distributed Blockchain Characteristics

No central database

Immutable ledger

Public ledger

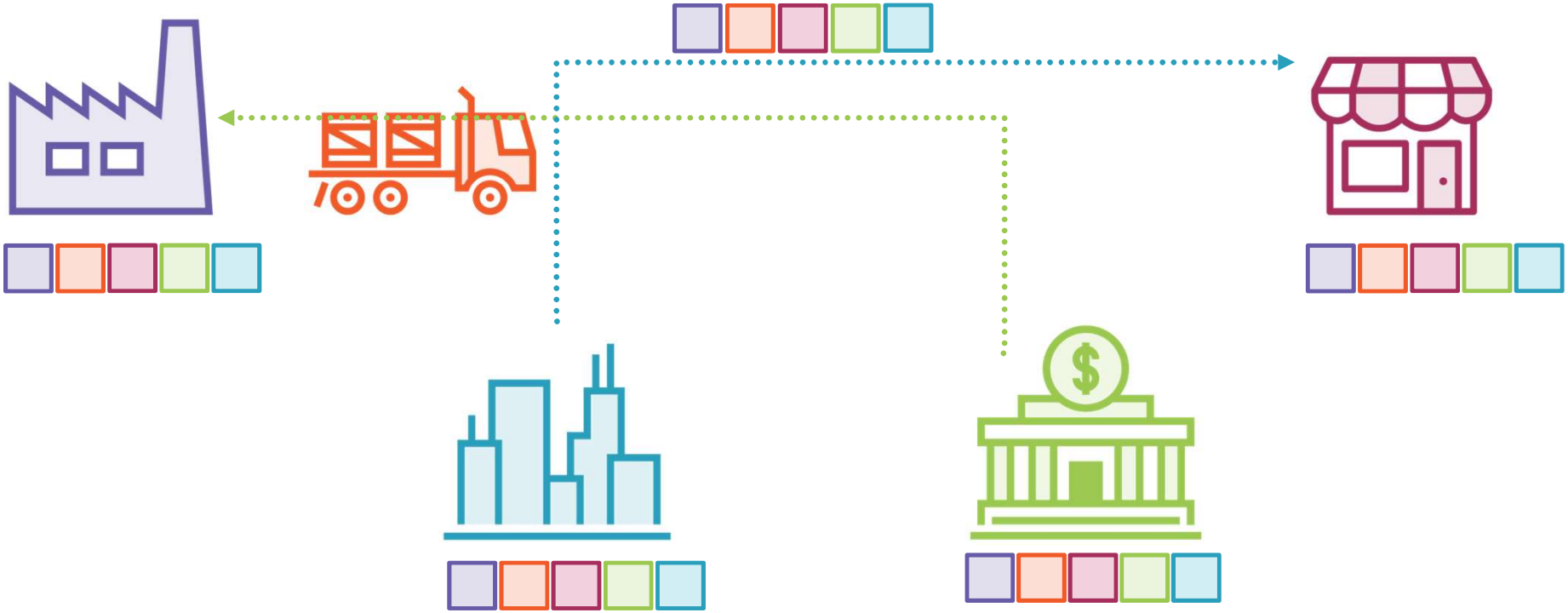
Distributed Blockchain Characteristics

No central database = No trusted repository

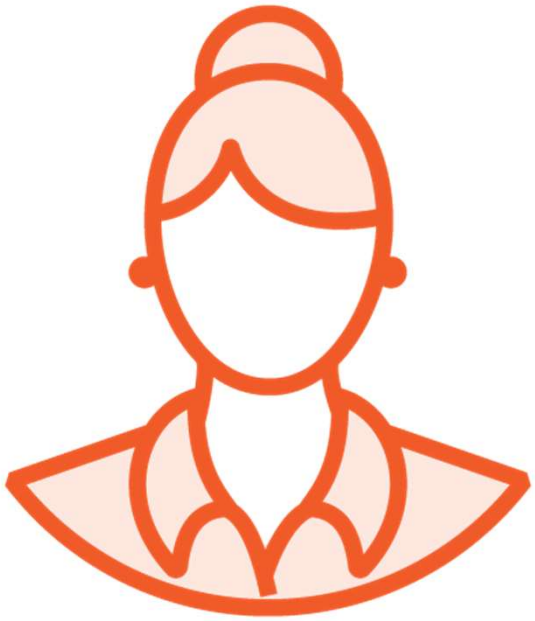
Immutable ledger

Public ledger = Public shared data

Consider a Supply Chain



Wait – Our Data Isn't Public!



Financial data, sales data, customer data – all company confidential!

We like our centralized databases and our security systems work (mostly)

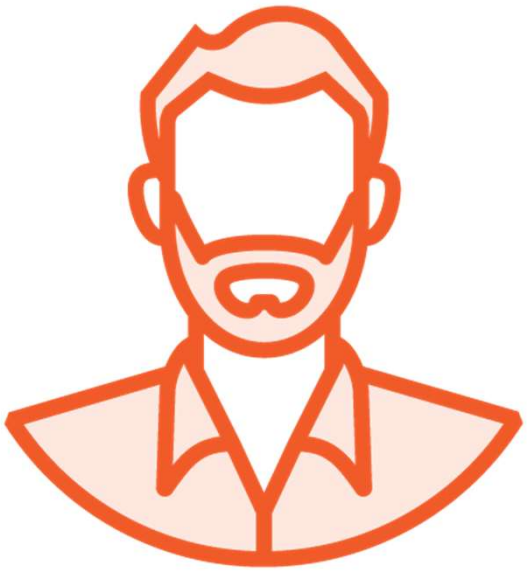
Our investors, customers and partners can trust our data management – can't they?

Why has the world gone crazy over blockchain?

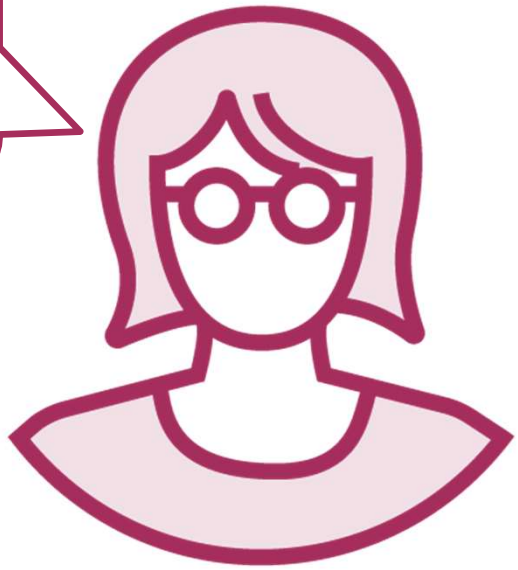
Blockchain Mania

A Typical Conversation

A Typical Conversation



I'm almost embarrassed to ask – what IS blockchain?



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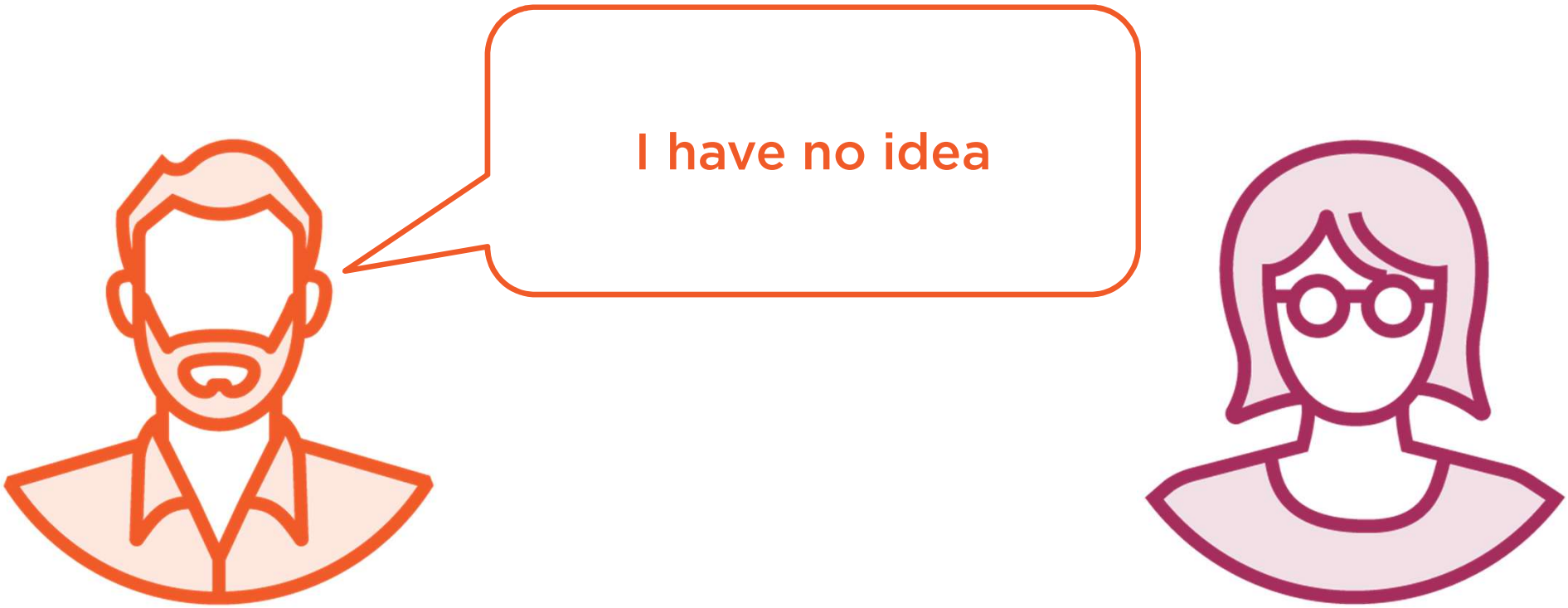
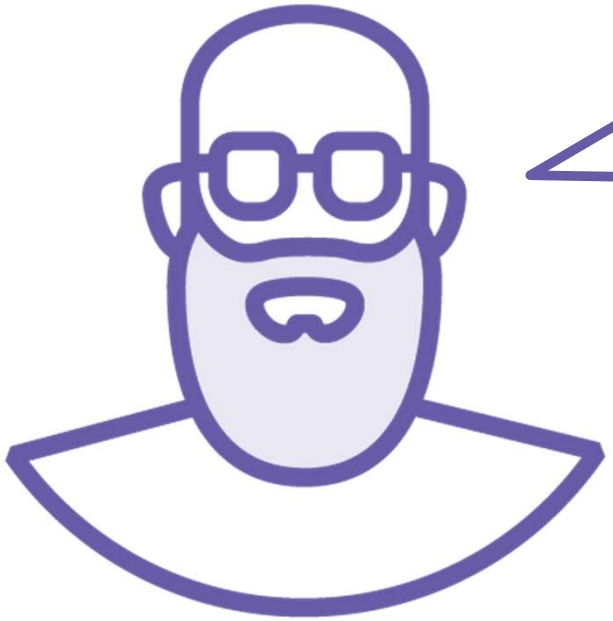


Globalmantics Footchain Technology

Blockchain for your soles

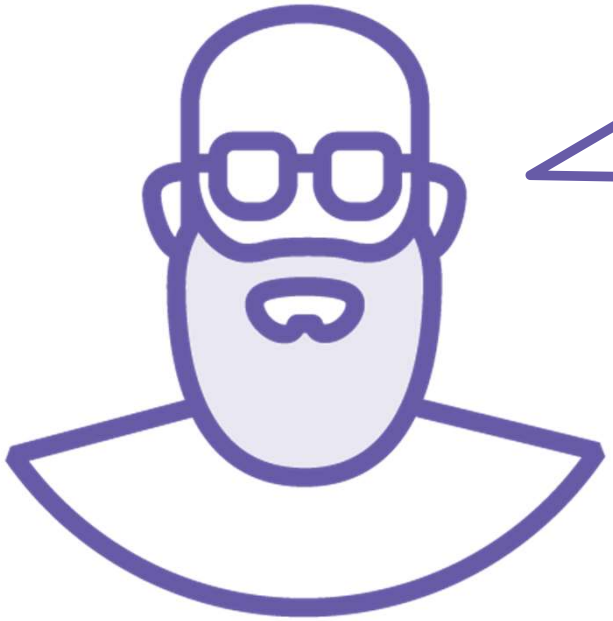


Originally they were just going to be great shoes.

But we thought – why not keep track of steps taken by using a blockchain?

Globalmantics Footchain Technology

Blockchain for your soles



What do you mean silly?

You're talking about using blockchain on Salesforce – as if that makes sense...

Globalmantics Footchain Technology

Blockchain for your soles

NEW AND IMPROVED

Blockchain doesn't really resonate with our customers, but we know what will work!

Financial Alchemy

First I tried alchemy –
No luck...

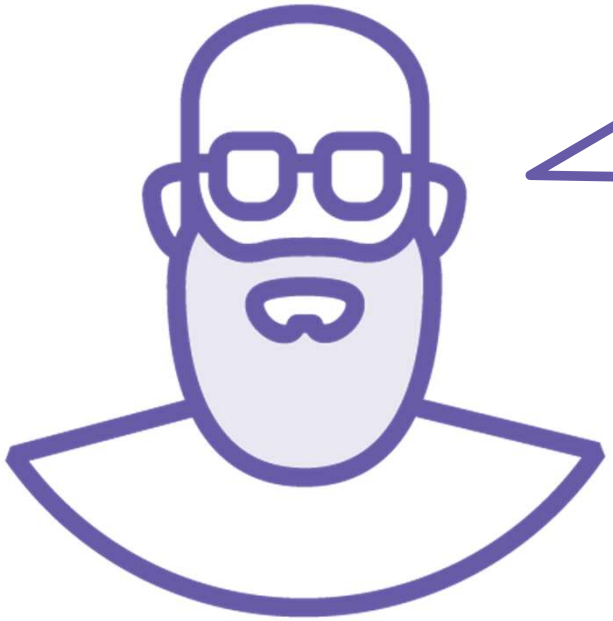
And magic –
Not reliable...

Then I found the true secret to creating gold out of nothing –
An ICO!

Globalmantics Footchain Technology

Blockchain for your soles

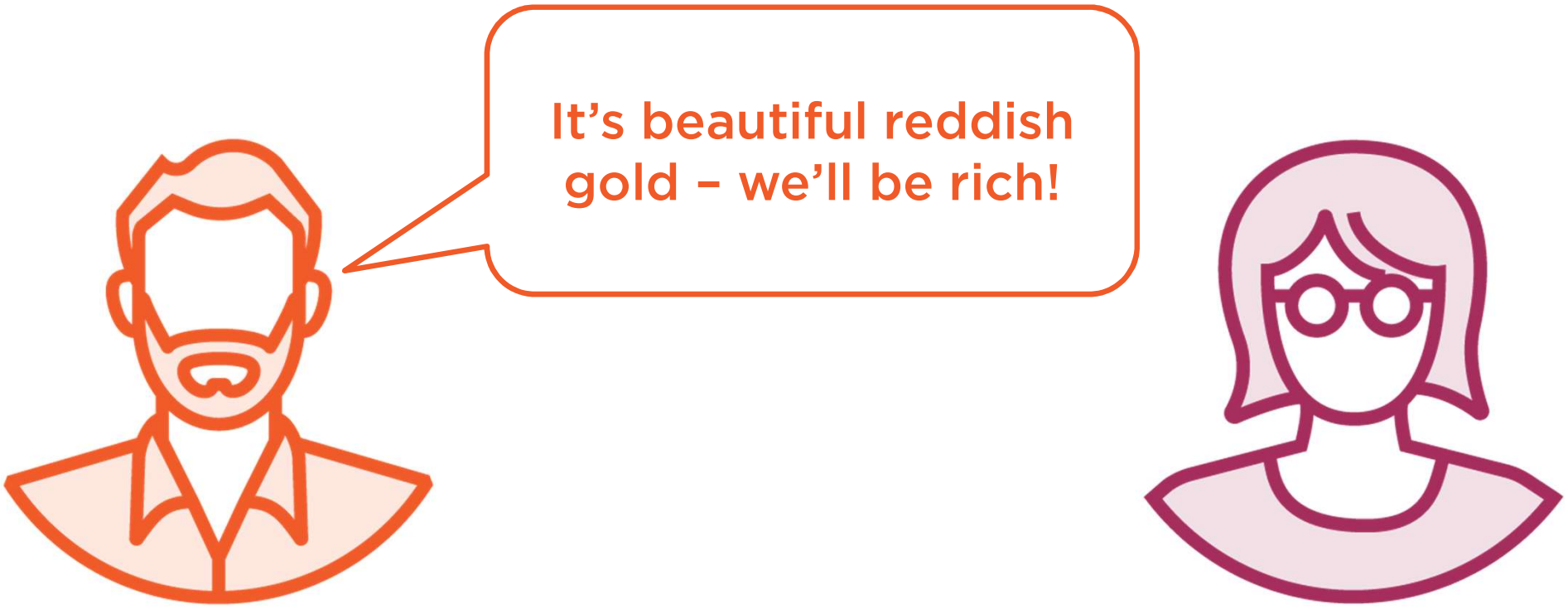
Coming soon: Stepcoin – the cryptocurrency that pays you to hike!



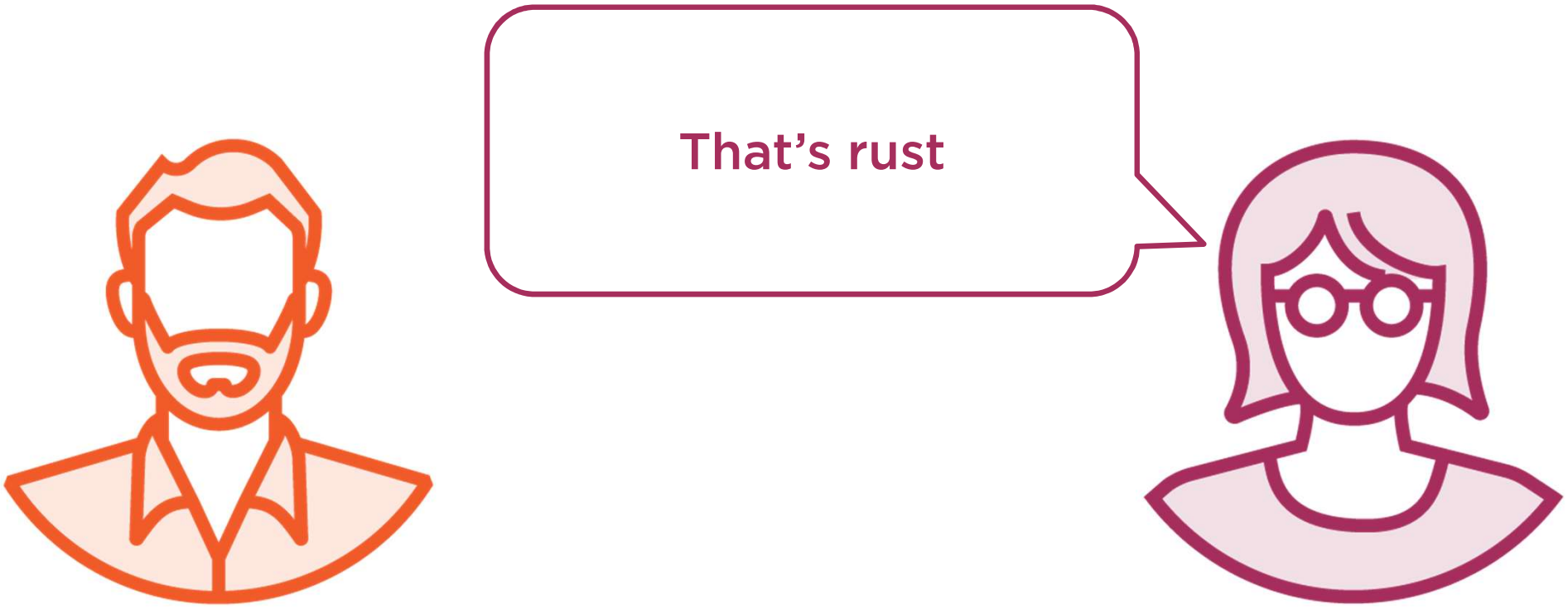
Bottom line...

Our valuation quadrupled and we had more investors than we could take once we added blockchain to our story...

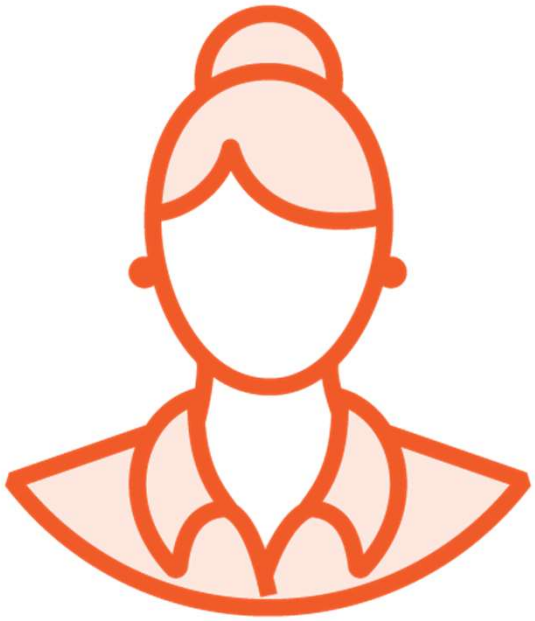
Shiny Tech Things



Shiny Tech Things



A Public Blockchain Isn't What We Need



We want to improve the quality of our proprietary data

We want to improve control and security over our data

And we want our investors, partners and customers to trust our data