

# University Credits 4.0

Project Group Proposal 2020/2021

# whoami

**Interim Professor for IT security**

**Research in Software Security**

Java Security

Vulnerability Analysis

Usability in Security

Type Systems

Static Program Analysis

**Software Engineer**



**Ben Hermann**

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**<https://thewhitespace.de>**

# Current Transcripts

Semesterverwaltung

Anmeldung zu Veranstaltungen

Status meiner Anmelde

Modulübersicht

Veranstaltungsübersicht

Schwerpunkte

Nebenfächer

Anmeldung Sprachkurse

Prüfungsvorbereitung

Studienorganisation

Semesterverwaltung

Prüfungsverwaltung

Prüfungsanmeldung

Meine Prüfungen

Prüfungsergebnisse

Leistungen

Leistungskonto

Dokumente

Anträge

Studienorganisation

Home

Stundenplan

Vorlesungsverzeichnis

Studium

Meine Daten

Bewerbung

Hilfe

Meine Anmeldungen

Schwebende Anmeldungen

Home

Stundenplan

Vorlesungsverzeichnis

Studium

Meine Daten

Bewerbung

Hilfe

PAUL

Parsons Army Center for the University of Leoben

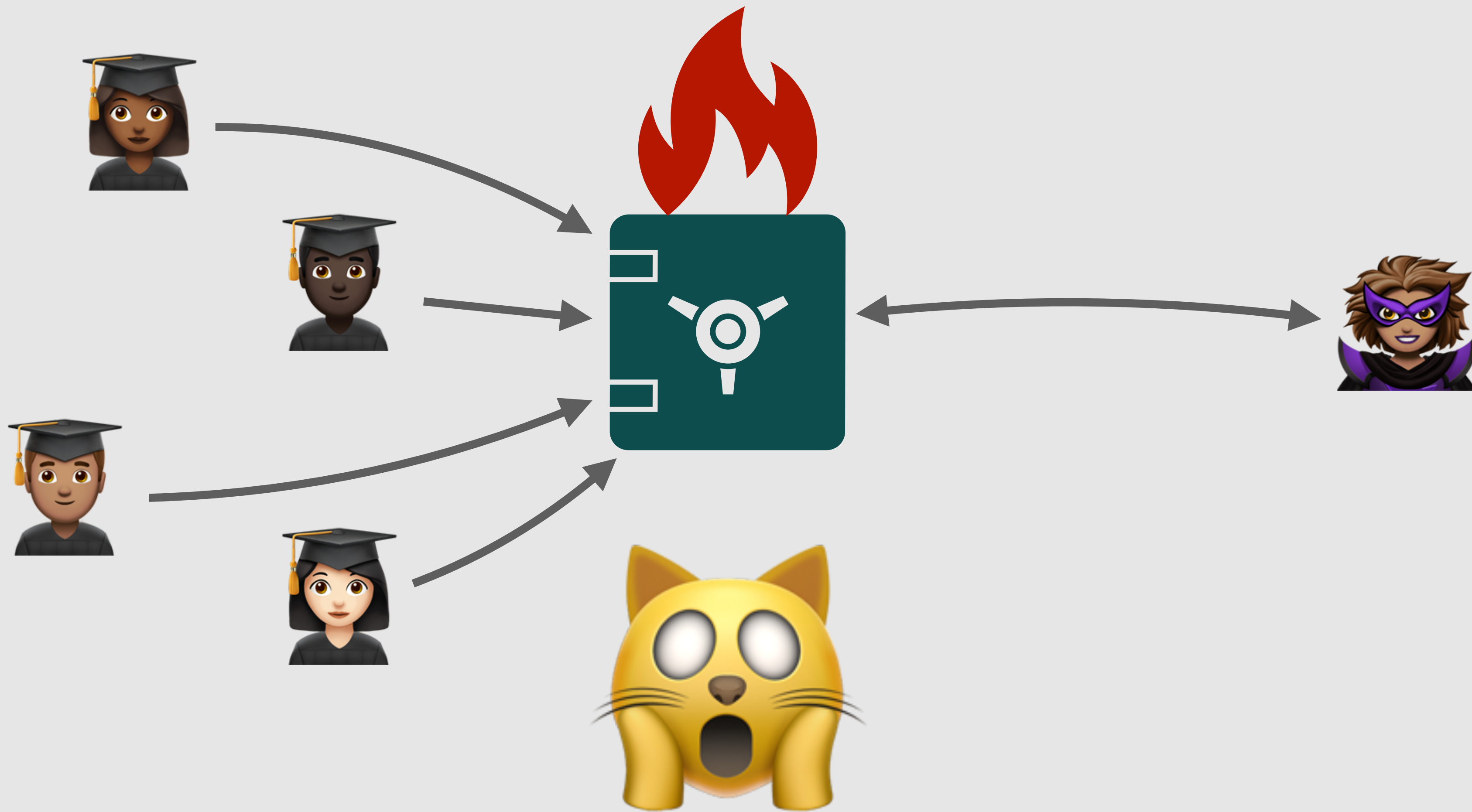
Leistungskonto von: [Name]

Informatik Master v3

Studium: Informatik Master v3 Aktualisieren

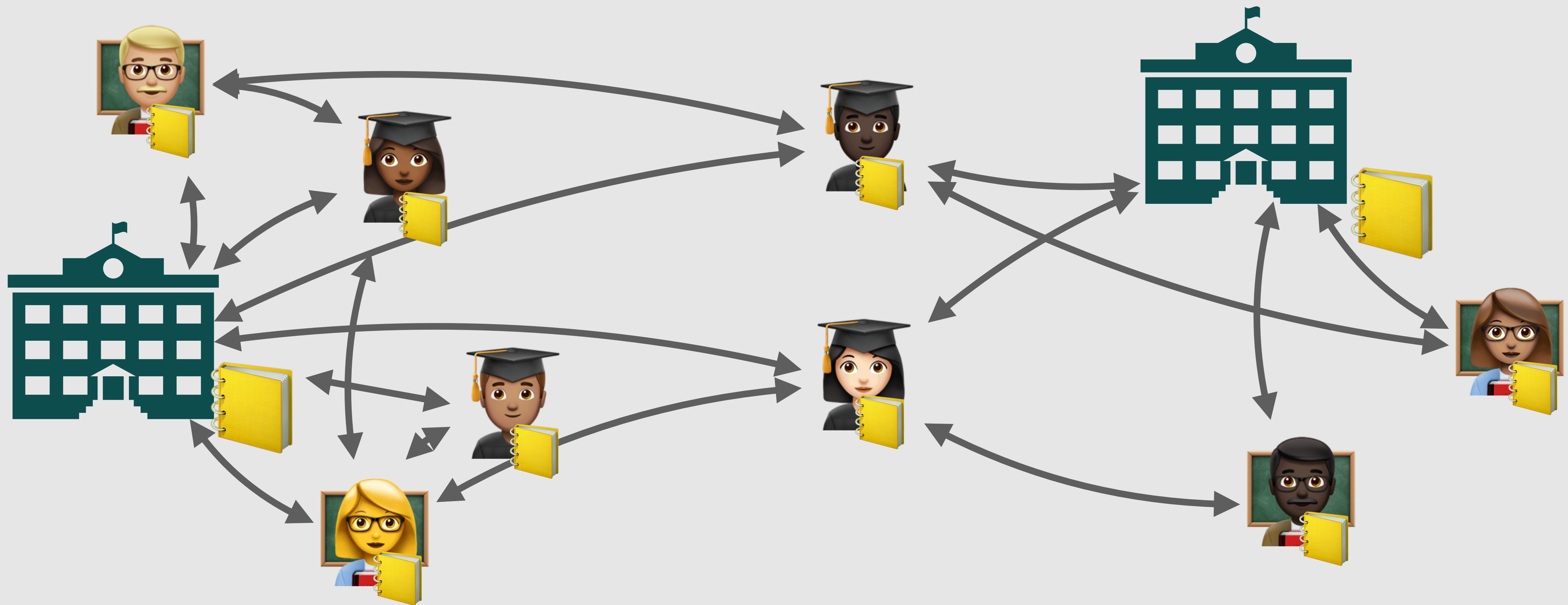
	Datum	Credits	Note	Status
Hauptfach				
Focus Areas				
Software Engineering				
M.079.4013	Build It, Break It, Fix It	6,0		✓
Summe Software Engineering		6,0		✓
In diesem Bereich sind mindestens 0 und maximal 7 Module zu belegen.				
Networks and Communication				
M.079.4006	Advanced Distributed Algorithms and Data Structures		incomplete	⚠
Summe Networks and Communication				✓
In diesem Bereich sind mindestens 0 und maximal 7 Module zu belegen.				
Summe Focus Areas		6,0		
In diesem Bereich sind 8 Module einzubringen.				
In diesem Bereich sind 48,0 Credits einzubringen.				
Seminare				
M.079.4045	Seminar I			
M.079.4046	Seminar II			
Summe Seminare				
In diesem Bereich sind 10,0 Credits einzubringen.				
Projektgruppe				
M.079.4041	Projektgruppe	20,0		✓
Summe Projektgruppe		20,0		✓
In diesem Bereich sind 20,0 Credits einzubringen.				

# Trust



# Challenging Trust:

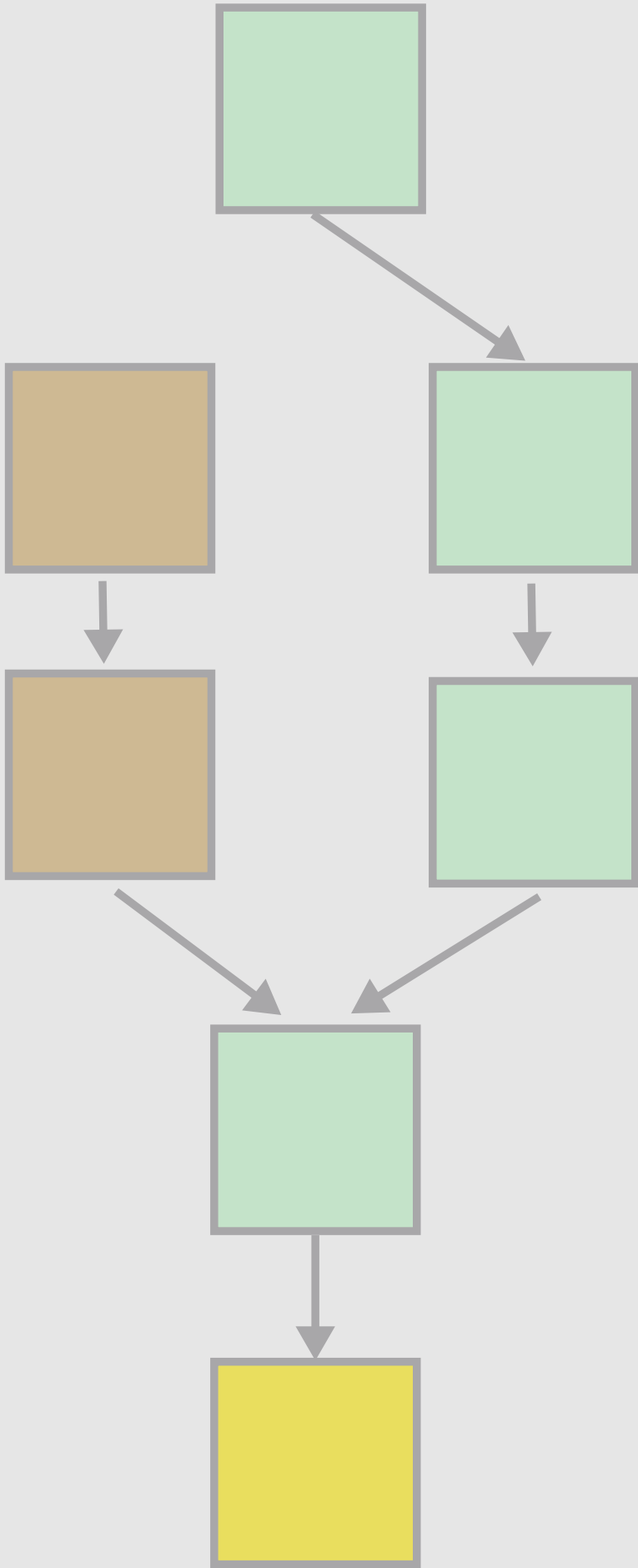
## Changing Location





# Blockchains

# Blockchains



Cryptographic Datastructure  
+  
Peer-to-Peer Networking  
=> Blockchain

More general: Distributed Ledger

But isn't this all public?

Block Height	15
Header Hash	0x333...
Previous Header Hash	0x442...
Timestamp	2018-10-24 ...
Difficulty	1180929.3
Nonce	4245028401
Merkle Root	0xC124DDB..
Transaction Data	<Transactions>

Block Height	14
Header Hash	0x442...
Previous Header Hash	0x532...
Timestamp	2018-10-23 ...
Difficulty	1130929.3
Nonce	9245028401
Merkle Root	0xC124DDB..
Transaction Data	<Transactions>

Block Height	13
Header Hash	0x532...
Previous Header Hash	0xC88...
Timestamp	2018-10-23 ...
Difficulty	1020929.3
Nonce	7245028401
Merkle Root	0xC124DDB..
Transaction Data	<Transactions>

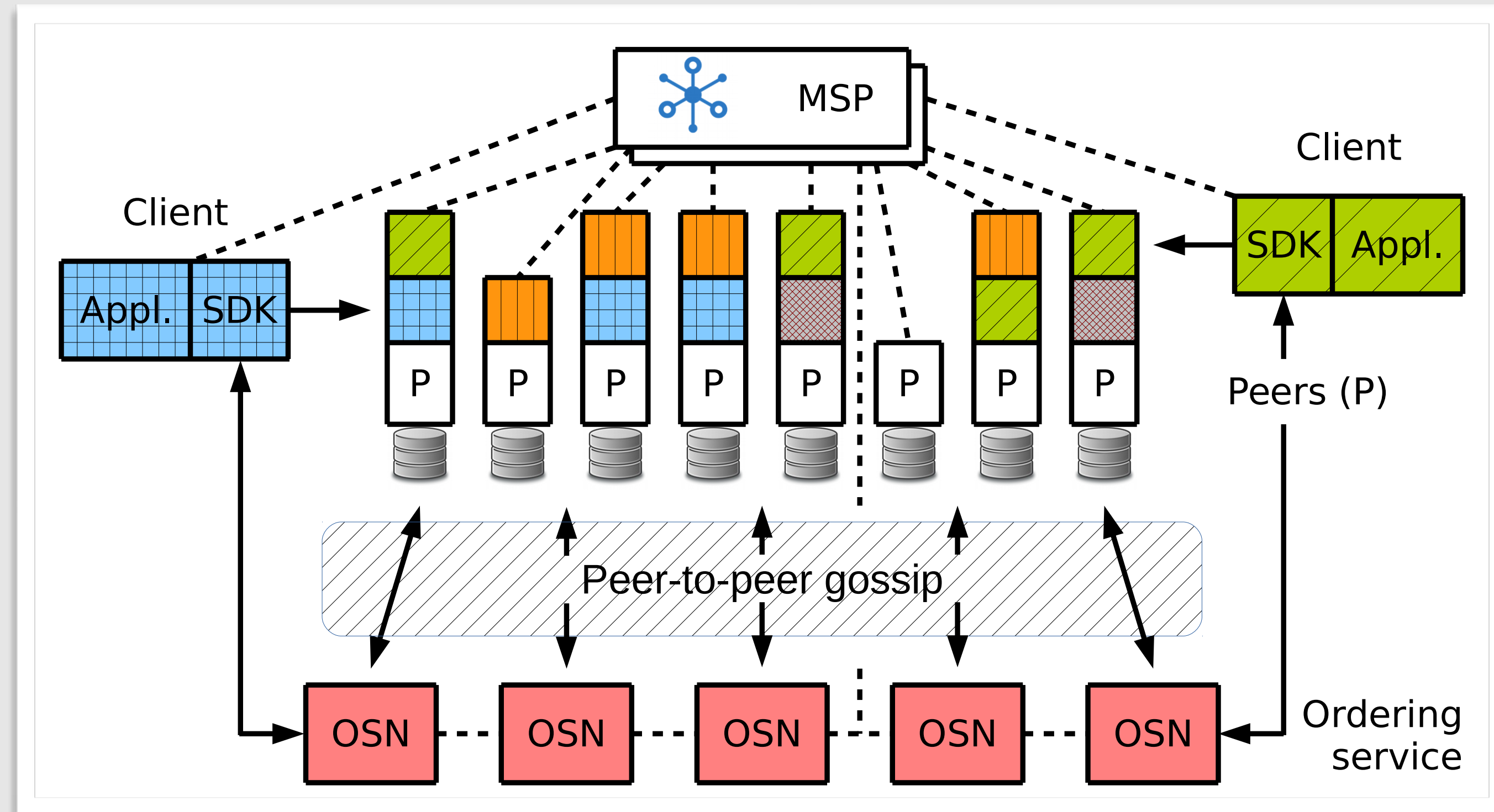
Block Height	12
Header Hash	0xC88...
Previous Header Hash	0x02C...
Timestamp	2018-10-22 ...
Difficulty	1010900.4
Nonce	1245028401
Merkle Root	0xC124DDB..
Transaction Data	<Transactions>

Block Height	11
Header Hash	0x02C...
Previous Header Hash	0x877...
Timestamp	2018-10-14 ...
Difficulty	1000224.7
Nonce	2245528401
Merkle Root	0xC124DDB..
Transaction Data	<Transactions>



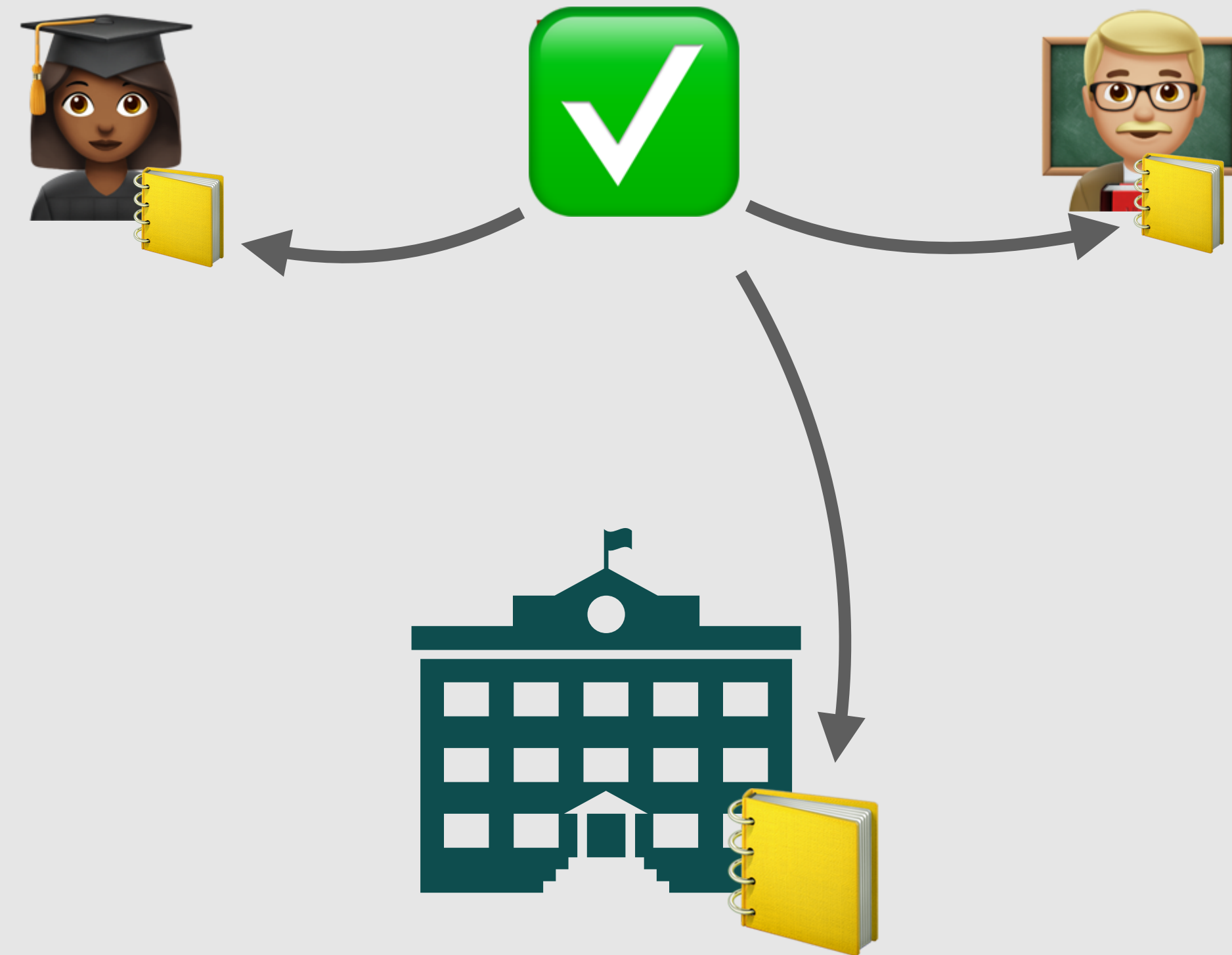
**Cryptocurrency is an application that sits on top of blockchain.  
Not the other way around.**

# Permissioned Blockchains

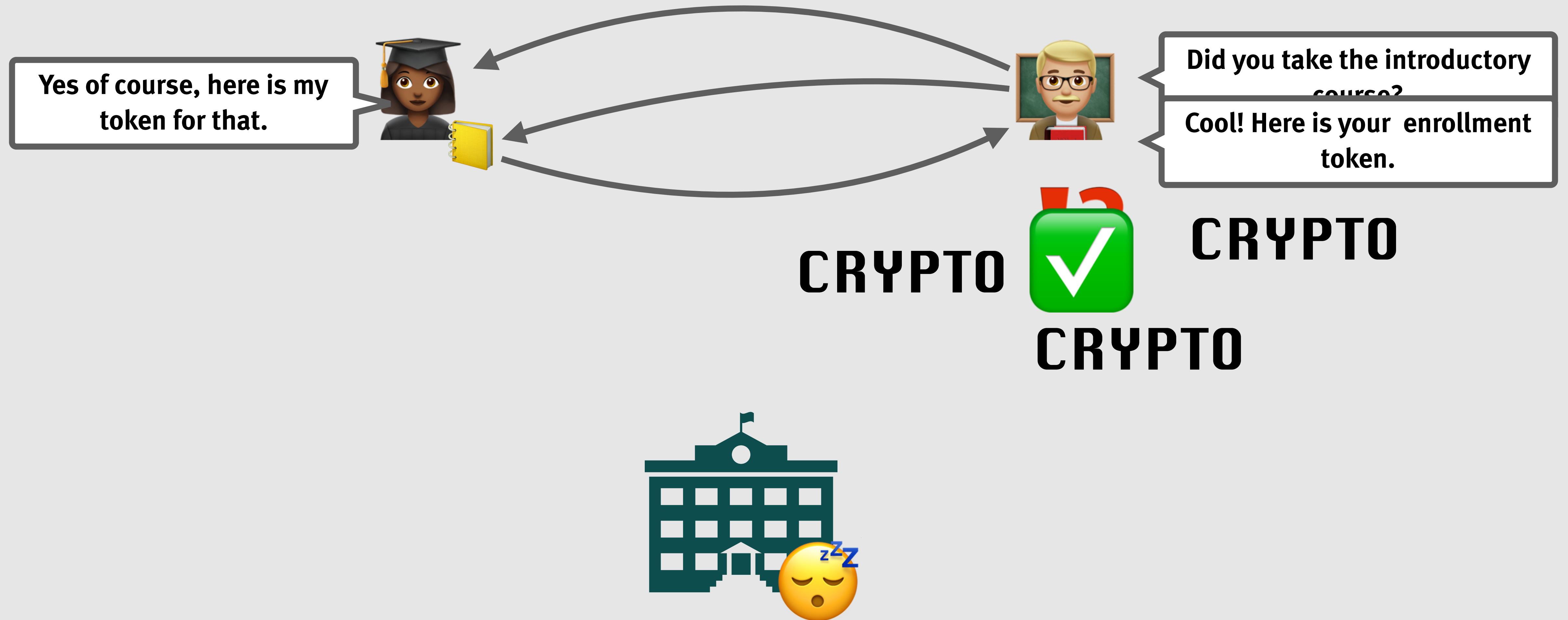


Elli Androulaki et al. Hyperledger fabric: A distributed operating system for permissioned blockchains. In Proceedings of the Thirteenth EuroSys Conference, EuroSys '18, New York, NY, USA, 2018. Association for Computing Machinery. doi:10.1145/3190508.3190538.

# Use Case 1: Receiving Course Credit



# Use Case 2: Enrolling



# Meta: Working Mode

Have an interest in security and privacy



Be willing to work a year on this



Open source is cool for you



“I’m just a frontend/backend person”  
will not work!

