Location Data Management

Delivering the Proof of Concept

Capgemini Proposal
Version 1.0, 20.10.2017

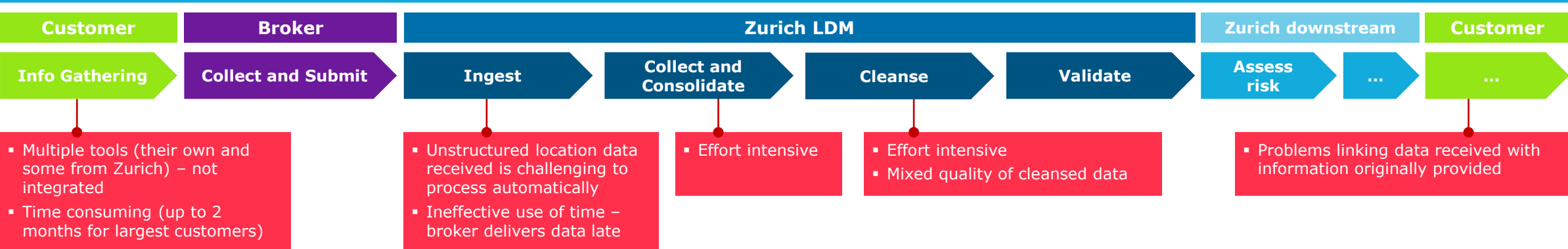Capgemini

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Scope

During the Ideation Phase the key pain points along the Location Data Management end-to-end process have been identified
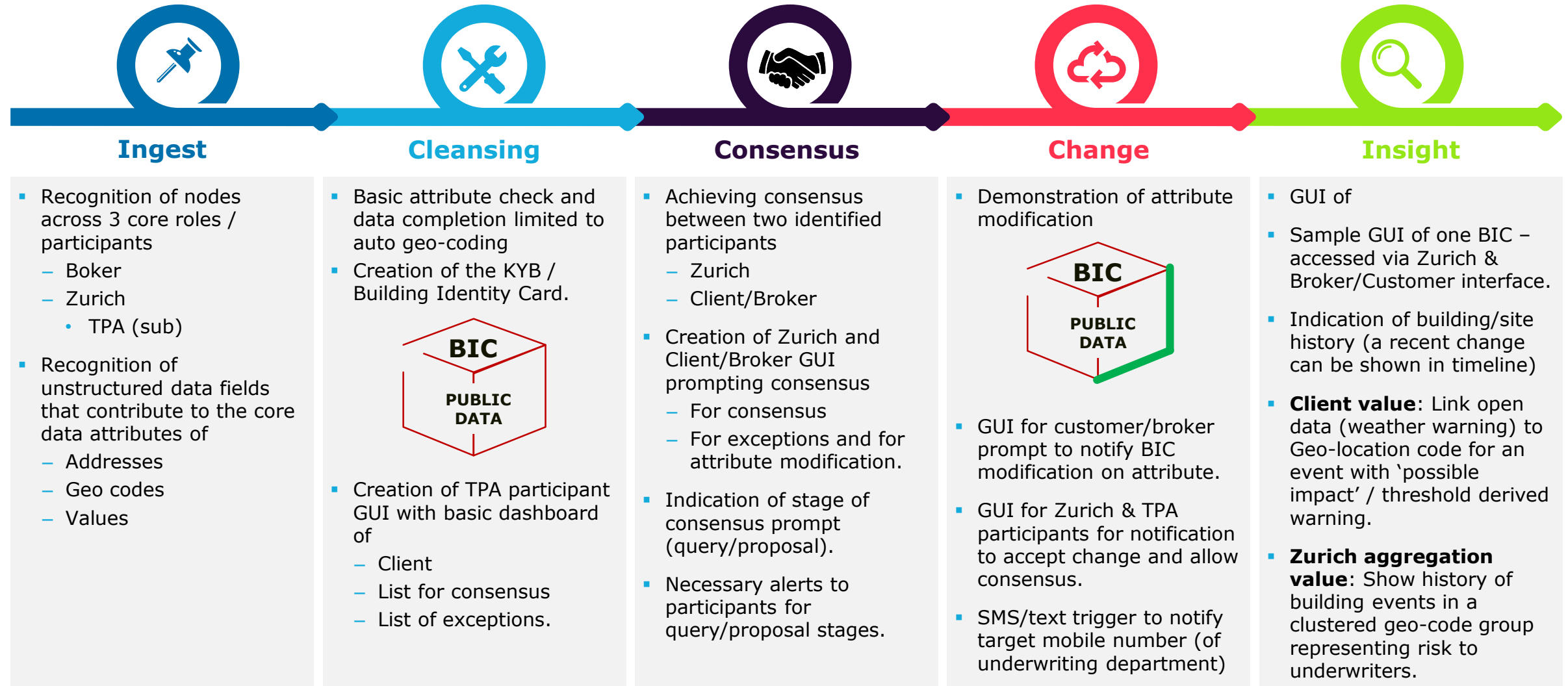
1. Pain points related to new business and renewal processes

Customer	Broker	Zurich LDM				Zurich downstream	Customer

Info Gathering	Collect and Submit	Ingest	Collect and Consolidate	Cleanse	Validate	Assess risk	...	...

Info Gathering
- Multiple tools (their own and some from Zurich) – not integrated
- Time consuming (up to 2 months for largest customers)

Ingest
- Unstructured location data received is challenging to process automatically
- Ineffective use of time – broker delivers data late

Collect and Consolidate
- Effort intensive

Cleanse
- Effort intensive
- Mixed quality of cleansed data

Customer
- Problems linking data received with information originally provided

2. Overall pain points

Zurich
- Insufficient data quality (accuracy, consistency, completeness)

Partners
- Inconsistent location data validation
- Lead / supplier insurer ecosystem collaboration
- Multiple cycles for exchanging data (push backs) are time consuming

Common
- No industry standard format to exchange location data
- No living view of location data
- Duplication of effort across the ecosystem
- Insufficient control over public/private location data exposure
- No traceability to the last editor

Customers
- Reconciliation/linkage of coverage with brokers and insurers across their portfolio/requirements

Brokers
- Replication of data reconciliation effort between client and brokers, and brokers and Insurers
- Eroding value in the ecosystem in cases of data inaccuracy

The Proof of Concept (POC) will address sufficient number of pain points to prove the viability of the DLT based solution approach

Ingest

- Recognition of nodes across 3 core roles / participants
  - Boker
  - Zurich
    - TPA (sub)
- Recognition of unstructured data fields that contribute to the core data attributes of
  - Addresses
  - Geo codes
  - Values

Cleansing

- Basic attribute check and data completion limited to auto geo-coding
- Creation of the KYB / Building Identity Card.

BIC

PUBLIC DATA

- Creation of TPA participant GUI with basic dashboard of
  - Client
  - List for consensus
  - List of exceptions.

Consensus

- Achieving consensus between two identified participants
  - Zurich
  - Client/Broker
- Creation of Zurich and Client/Broker GUI prompting consensus
  - For consensus
  - For exceptions and for attribute modification.
- Indication of stage of consensus prompt (query/proposal).
- Necessary alerts to participants for query/proposal stages.

Change

- Demonstration of attribute modification

BIC

PUBLIC DATA

- GUI for customer/broker prompt to notify BIC modification on attribute.
- GUI for Zurich & TPA participants for notification to accept change and allow consensus.
- SMS/text trigger to notify target mobile number (of underwriting department)

Insight

- GUI of
- Sample GUI of one BIC – accessed via Zurich & Broker/Customer interface.
- Indication of building/site history (a recent change can be shown in timeline)
- **Client value**: Link open data (weather warning) to Geo-location code for an event with 'possible impact' / threshold derived warning.
- **Zurich aggregation value**: Show history of building events in a clustered geo-code group representing risk to underwriters.

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This is how POC's functionality will address the requirements discovered during ideation

We have taken some of the requirements from ideation to the next level of detail based on our effort estimation and to achieve the best value for the POC

Requirement area	High-level specification for POC
Ingestion of structured data	▪ Excel files with a single, simple format are supported (easier to use in demos than XML files) ▪ Files are either fully accepted or fully rejected (no partial processing) ▪ At least 2 different address formats supported (e.g. Western Europe and Asia) ▪ Output: address data (ca. 4 attributes), industry code, geocode, insurance values (ca. 4 attributes)
Pre-validation	▪ Use Google maps API to check whether a given address is valid
Cleansing and data completion	▪ Use Google maps API to lookup missing geocodes
Access control and viewing rights	▪ Users with different roles (Zurich PC, broker, customer etc.) will get different functionality and see different data (data segregation) ▪ Use scripts to set user permissions and/or roles
Notification (alert)	▪ Users will be notified (e.g. using popups in the GUI) about relevant data updates
API	▪ A simple API will publish relevant events of the data life cycle with basic data
Value-added services	▪ The GUI will provide a view on the customer's location data enriched with some sample Zurich data to provide added value to customers. Representation to be explored during the POC, e.g. overlay Google maps or graphical drill-down

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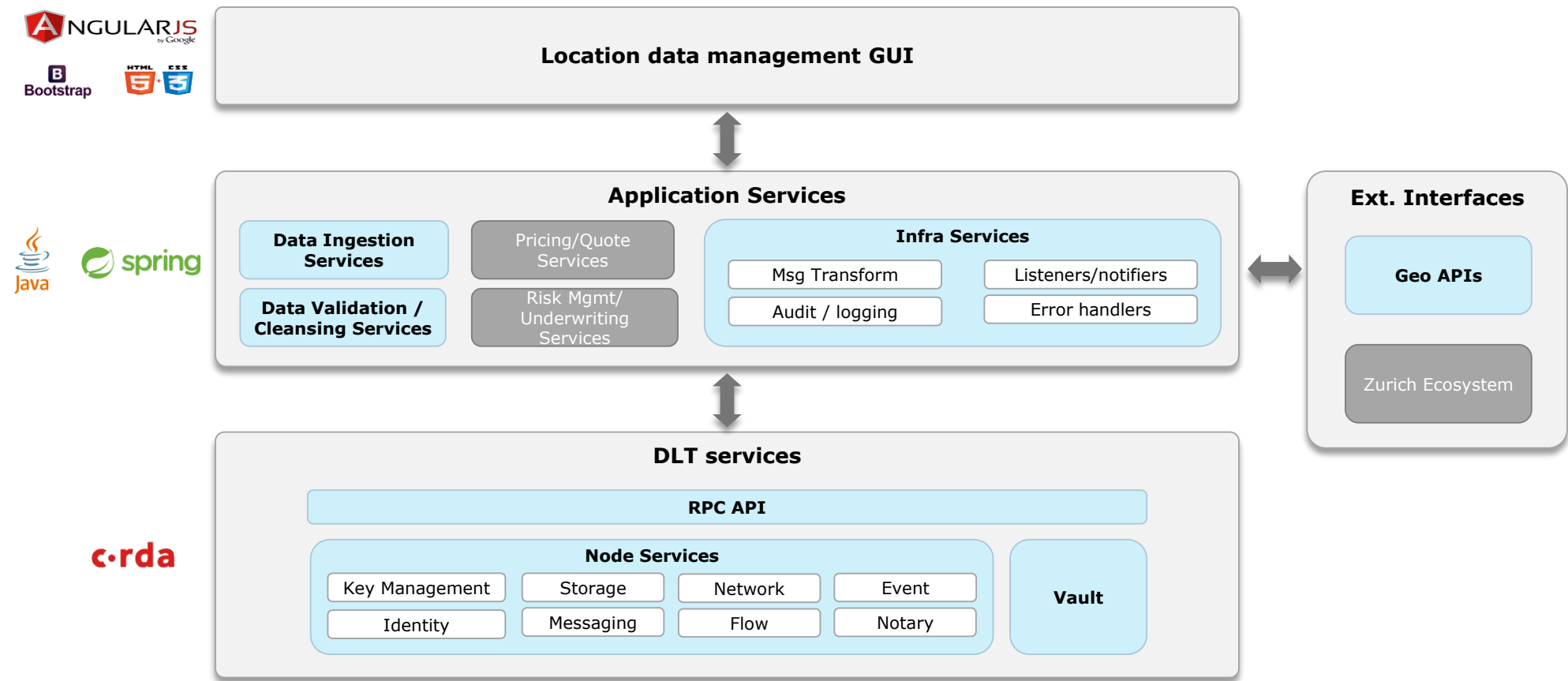# The non-functional properties of the system will be adequate for a POC but will be lower than a production grade system

Effort for production-level performance, availability etc. is saved and spent on delivering business value instead

Property	Specification
Performance	▪ Not optimized for performance ▪ Aiming for reasonable processing times for the agreed small demo data sets
Availability	▪ Google cloud will provide an availability of >= 99.95% and give financial credits when not met
Backup and Disaster Recovery	▪ No automatic backup ▪ Redeploy application using provided scripts for disaster recovery
Security	▪ Login using username/password (no single sign-on) ▪ Local identity management, no integration with any identity store such as MS Active Directory or LDAP service ▪ Basic protection only – not production grade
Volumes	▪ Limited data volume supported: Up to 200 locations per customer and data file, 2 customers
Language support	▪ Only English supported

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Solution overview

The POC system will consist of a GUI, application services and DLT services

Location data management GUI

Application Services

Data Ingestion Services	Pricing/Quote Services	Infra Services	
		Msg Transform	Listeners/notifiers
Data Validation / Cleansing Services	Risk Mgmt/ Underwriting Services	Audit / logging	Error handlers

Ext. Interfaces

Geo APIs

Zurich Ecosystem

DLT services

RPC API

Node Services

Key Management	Storage	Network	Event
Identity	Messaging	Flow	Notary

Vault

Out of scope for PoC

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The POC consists of three nodes that form an initial ecosystem network using the shared ledger

Deployment architecture

- Zurich PC, Broker and Third Party Data Processing Agent (TPA) will use one DLT node each connected in a peer to peer network
  - In the MVP Zurich may use additional nodes
  - Node for broker demonstrates that brokers can own nodes if they want

- A cloud VM hosts
  - DLT node with shared ledger (KYB transaction records) and smart contracts
  - Distributed application with web GUI and application services
  - API stub for data life cycle events and for value-added services
  - In MVP additional applications and integration with systems on premise

- No integration with Zurich or broker systems to avoid any project delays with security requirements

- DLT platform is R3 Corda (see rationale below)

- Easy access over the internet (online version)

- Desktop web device support (no mobile)

- No off-chain storage

Broker

Zurich PC

Cloud VM

Web App and Services

DLT node

Shared Ledger   Smart Contracts

Cloud VM

Web App and Services

DLT node

Shared Ledger   Smart Contracts

Peer to peer network

Cloud VM

DLT node

Shared Ledger   Smart Contracts

Web App and Services

TPA
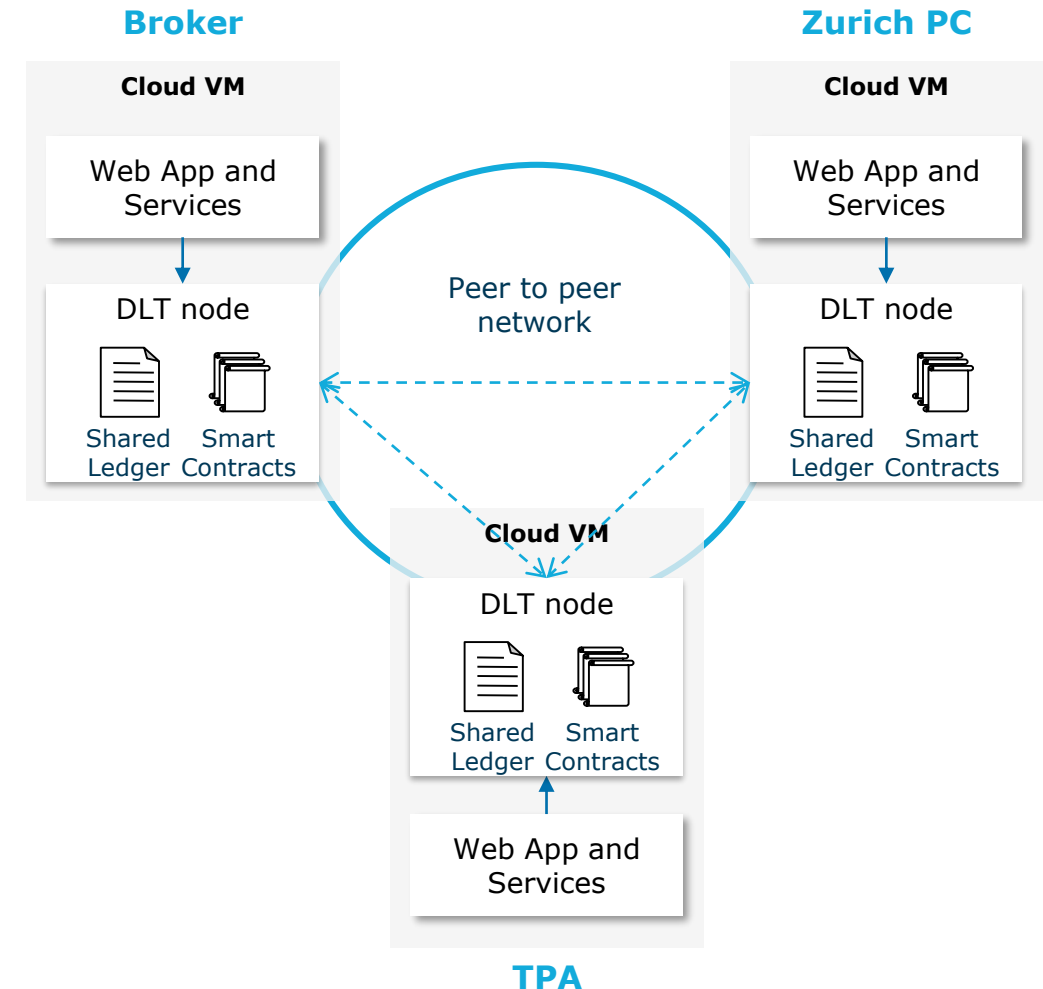
Environments and hosting choice

The number of environments is kept low to reduce effort and cost. The Google cloud platform is a good fit for the POC.

Environments

- Development environment – for developers | on laptops
- Demo environment – for testers and for Zurich | in the cloud, accessible over the internet
- No other environments will be set up for the POC

The demo environment will be hosted in the Google cloud platform

- Fast provisioning – potentially much faster than in a Zurich environment
- Cost effective – lower cost than other public cloud providers for the requirements of this POC
- Cloud platform to host MVP may be a different one and would be selected based on requirements from Zurich IT

Capgemini proposes to use R3 Corda. It is well suited for location data management and other use cases within insurance.

R3 Corda is the only DLT platform designed specifically with the requirements of banking and insurance applications in mind.

- Capability to maximize confidentiality, as data is only shared by the relevant nodes to each transaction (point-to-point) as opposed to channels used by other DLT
- Corda is built with proven enterprise technologies such as Java, SQL and AMQP leading to easier integration and lower TCO
- Suitable for building applications for reference data such as location data
- The platform is supported by R3, the R3 consortium members, and a large open-source community

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Delivery approach and timeline

The delivery approach uses an Agile methodology

The Agile methodology is based on Scrum and will provide early and continuous delivery of valuable software

- Sprint length is 2 weeks

- UX prototype developed in the first half of the project to ensure good user experience

- Product backlog needs at least 3 weeks worth of work (except for the last 3 weeks in the project)

- High priority product backlog items need enough detail for subsequent planning and implementation

- Required contribution from Zurich

  - First 4 weeks of UX prototype development: review UX design daily for 30 minutes on average

  - Bi-weekly participation in sprint planning and sprint review meetings

  - Meetings twice a week to provide enough detail for product backlog items including UX prototyping

  - See also proposed team structure and responsibilities below

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Indicative delivery sequence for POC scope. Sprint content will be adapted during the course of the project following the Agile approach.

W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14
30.10.17	06.11.17	13.11.17	20.11.17	27.11.17	04.12.17	11.12.17	18.12.17	25.12.17	01.01.18	08.01.18	15.01.18	22.01.18	29.01.18

Sprint 0 | Sprint 1 | Sprint 2 | Sprint 3 | Sprint 4 | Sprint 5 | Sprint 6

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Kick-off

Setup environments

UX Prototyping

Application Base

Ingest data | Cleansing | Validation/Consensus | Updates | Finalise

Insights

Video

Documentation

Drop 1 | Drop 2 | Drop 3 | Drop 4 | Drop 5 | **Final Drop**

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Provide detailed input

Review/planning

UX prototype review

Deliver test data sets

- The activities shown above will address the respective functional scope that is sequentially developed.
- Each drop (release) will deliver the work that has been completed in the respective sprint.

- Assumption: Project will start on 30th October. A delayed start would delay the project end accordingly.

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Proposed team structure and responsibilities

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Project Manager

- Program status and progress review
- Issue/Risk Management
- Change Control

Product Owner

- Manages the Product Backlog to maximise the value of the project
- Ensure that business SMEs are aligned on the objectives and solution
- Represents all stakeholders from customer's perspective

Business Subject Matter Expert

- Provide location data management expertise
- Review and signoff process flow and UI design
- Testing from an end-user perspective and user acceptance tests

Capgemini Onshore

Project Manager

- Works with client team to plan, manage and monitor the drops
- Program status and progress review
- Issue/Risk Management
- Change Control

Blockchain Architect

- Co-create system architecture
- Participate in requirements detailing and analysis activities
- Sprint planning

Business Analyst

- Lead requirement detailing and analysis activities
- Provide insurance domain expertise
- Customer user interaction
- Provide end-user perspective during design and testing

Capgemini Onshore

Scrum Master

- Facilitator for agile processes and practices
- Team co-ordination and Impediment Management

Blockchain Architect (partially onsite)

- Co-create system architecture
- Participate in requirements detailing and analysis activities
- Participate in developing estimates and project planning
- Develop technical design and detail design
- Design environments
- Sprint coordination and progress reporting

Blockchain and Application Developer

- Collaborate with other developers to design and implement blockchain and application components
- Testing and bug fixing
- Sprint planning, progress reporting

UX Designer

- Develop UI wireframes and images

Commercials
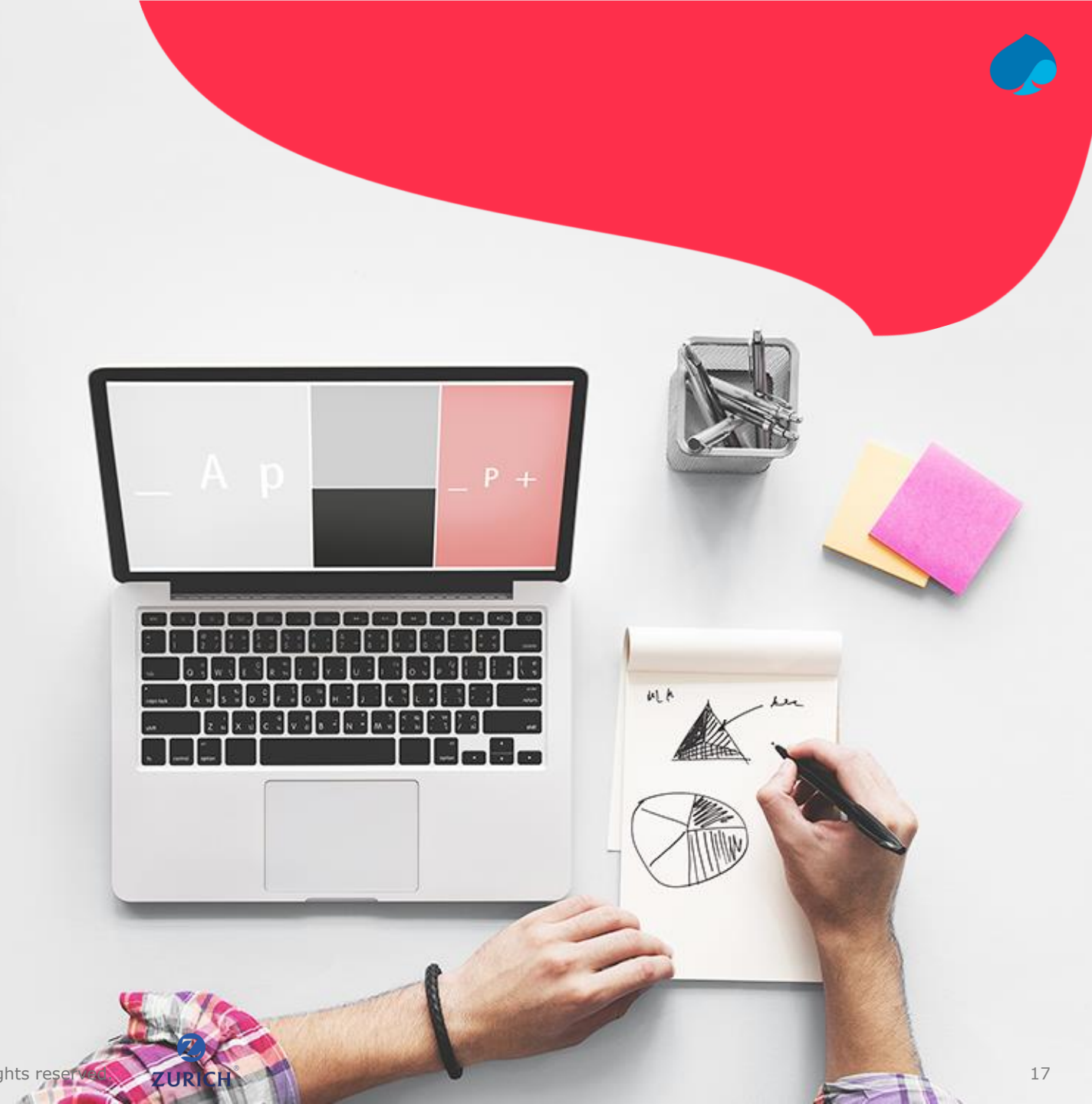
Deliverables

The project will deliver a POC installed in the cloud, the POC artifacts and a video

- **POC installed in demo environment on the Google cloud platform, accessible over the internet to demonstrate to clients**
  - POC artifacts
  - Source code and application resources (images etc.)
  - Scripts to deploy the images to the cloud environment
  - Documentation to use the deployment scripts

- **Preparing the demo environment for demos and assisting with demonstrating the POC**
  - Included in this offer until one week after the final drop has been delivered
  - Available as for an extra fee after that point

- **Video showcasing the POC**
  - Similar to the KYC demo presented to Zurich on 2nd October
  - English language in UK accent spoken
  - Will be created by a dedicated Capgemini team

The POC Build Phase does not include any activity related to the MVP Phase

Commercials

The estimated fees for the POC Build Phase will be CHF 290,741 (excl. VAT, incl. Expenses and Contingency) on a time & material basis.

Component	Role / Item	FTE	Location	Effort (days)	Daily Rate (CHF)	Total (CHF)
Project	Delivery Executive	0.2	Onsite	14	CHF 2'520	CHF 35'280
	Project Lead	1	Onsite	22	CHF 1'782	CHF 39'213
	Scrum Master	1	Offshore	27	CHF 249	CHF 6'731
	Blockchain Architect	1	Onsite	25	CHF 1'782	CHF 44'560
	Blockchain Architect	1	Offshore	40	CHF 249	CHF 9'972
		1	Onsite	30	CHF 1'100	CHF 33'000
	Blockchain Developer	1	Offshore	50	CHF 249	CHF 12'465
	Blockchain Developer 2	1	Offshore	65	CHF 249	CHF 16'204
	UI Designer	1	Offshore	50	CHF 249	CHF 12'465
	UX Prototype Developer	1	Offshore	30	CHF 249	CHF 7'479
	Insurance and Application SME	1	Onsite	10	CHF 1'884	CHF 18'844
Expenses	Hosting costs (for 8 months)					CHF 3'225
	Video development					CHF 4'061
Contingency	20% (recommended)					CHF 47'243
Total				**363**		**CHF 290'741**

Assumptions

1. The assumed start of the project is Monday 30th of October 2017.
2. Our estimates are based on our current understanding of what Zurich want to achieve with the Blockchain LDM POC and the assumptions listed in this document.
3. The rates are based on the Zurich/Capgemini Swiss LSA

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Outlook on MVP

Outlook on MVP and beyond: Proposed feature roadmap

Feature	POC	MVP[1]	After MVP
Structured input formats	▪ Excel files with a single, simple format	▪ Excel files in different formats (automatic mapping to standard format)	▪ Structured formats: XML (exported from client IT systems)
Unstructured input formats	▪ n/a	▪ n/a	▪ PDF with scanned forms – efficiency gains through automation (start with evaluating existing in-house solutions)
Data model	▪ Address data (about 4 attributes), industry code, geocode, insurance values (about 4 attributes) ▪ 2 different address formats (e.g. Europe, Asia)	▪ Additional attributes relevant for client ▪ All address formats relevant for client	▪ Increasingly complete coverage
Pre-validation	▪ Use Google maps API to check if address is valid	▪ Simple plausibility checks based on previous data from the same location	▪ More complex plausibility checks
Cleansing and data completion	▪ Use Google maps API to lookup missing geocodes	▪ Use data analytics to reach a higher level of automated cleansing	▪ Improved automated cleansing
Validation	▪ Validation by consensus between client and Zurich		▪ Automated validation where data is plausible
Notification (alert)	▪ Users will be notified (e.g. using popups in the GUI) about relevant data updates	▪ Notifications on other channels (e.g. email)	▪ Notifications into other stakeholder tools
API	▪ A simple API will publish relevant events of the data life cycle with basic data	▪ Enhanced API	▪ Enhanced API
Value-added services	▪ Simple view of customer's location data enriched with sample Zurich data	▪ 1 to 2 additional views	▪ Enhanced possibilities
Access control and viewing rights	▪ Basic access control and viewing rights built-in ▪ Use scripts to set user permissions and/or roles	▪ User admin GUI for user permissions ▪ Configurable access control	▪ Integration with Zurich's identity stores

Outlook on MVP and beyond: Proposed roadmap for non-functional topics

Topic	POC	MVP[1]	After MVP
System integration	▪ n/a	▪ Integrate with IT systems consuming location data ▪ Integration with Zurich's identity store	▪ Integration with selected broker's and customer's identity stores
Performance	▪ Small demo data sets only	▪ Capacity to handle data for first client	▪ Production grade
Security and availability	▪ Basic	▪ Basic production grade	▪ Production grade
Developer tools	▪ Basic	▪ Test automation, continuous integration	
Environments	▪ Development, demo	▪ Development, test, demo, production	▪ Same
Cloud platform	▪ Google cloud	▪ Re-assess cloud platform choice with Zurich IT architecture / security requirements	▪ Same
Measurement of benefits	▪ n/a	▪ Basic KPIs to measure process performance (ideally pre and post) and customer satisfaction	▪ Additional KPIs and dashboard
Business ecosystem		▪ Win first broker with client to use the LDM platform	▪ Onboard additional brokers and clients

[1] The proposed features for the MVP need to be aligned with the requirements for the selected pilot broker and client

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With more than 190,000 people, Capgemini is present in over 40 countries and celebrates its 50th Anniversary year in 2017. A global leader in consulting, technology and outsourcing services, the Group reported 2016 global revenues of EUR 12.5 billion. Together with its clients, Capgemini creates and delivers business, technology and digital solutions that fit their needs, enabling them to achieve innovation and competitiveness. A deeply multicultural organization, Capgemini has developed its own way of working, the Collaborative Business Experience™, and draws on Rightshore®, its worldwide delivery model.

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