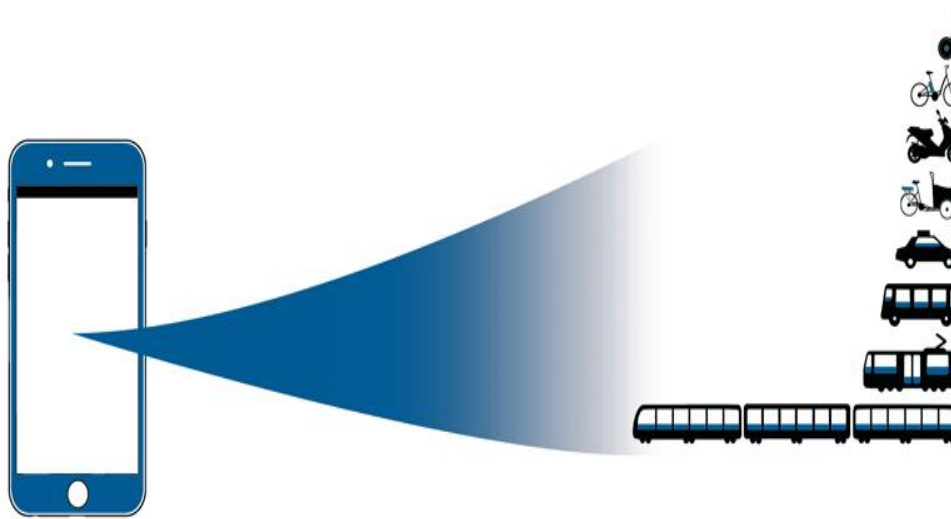




A NEW JOURNEY

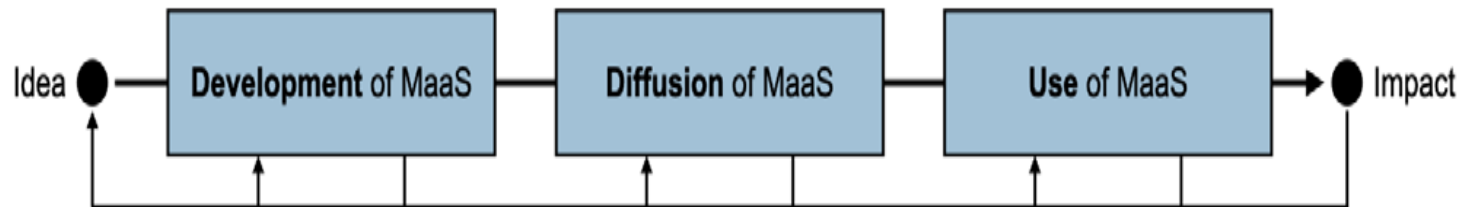


URBAN MAAS



- Stitching of products of formal and informal transit, operations into a widely accepted multimodal service
- Convergence of supply and demand, integrated technological structures, business models and governance
- MaaS Operators (Integrators) interface – promise, commit and insure
- Open market place/network of public private enablers

IMPACTFUL IDEA!



Sandbox, Proof tested, Capacity building? Discussion on the critical issues? Demographic deployment?

BEYOND PROOF TEST

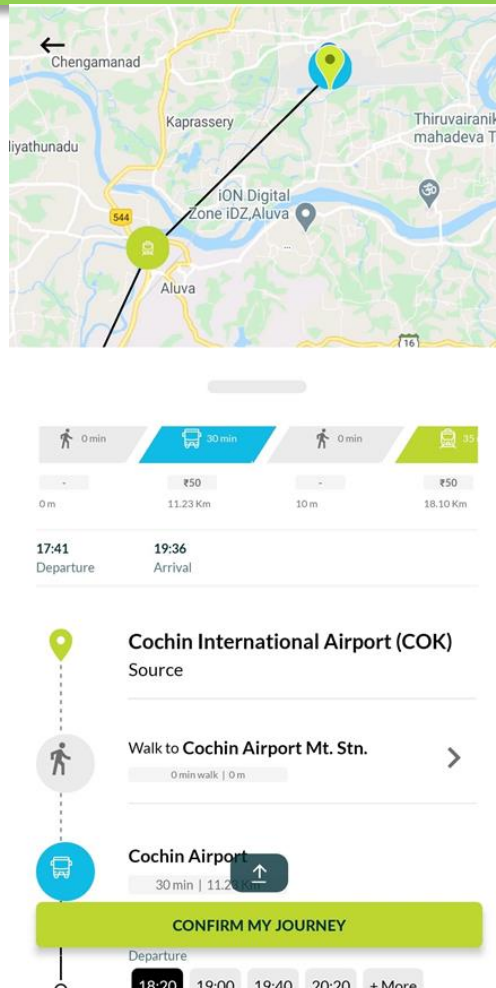


whim
How to get there.

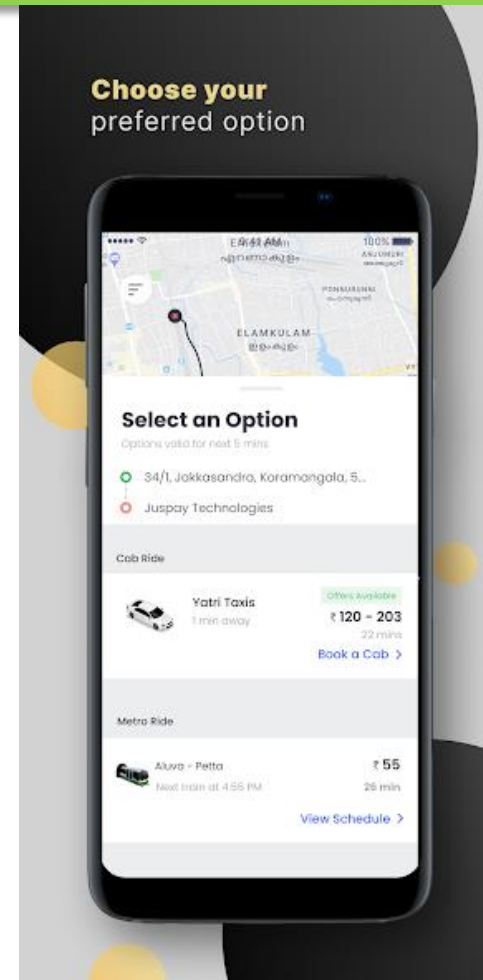


<https://vimeo.com/508001710>

BEYOND PROOF TEST



Kochi 1

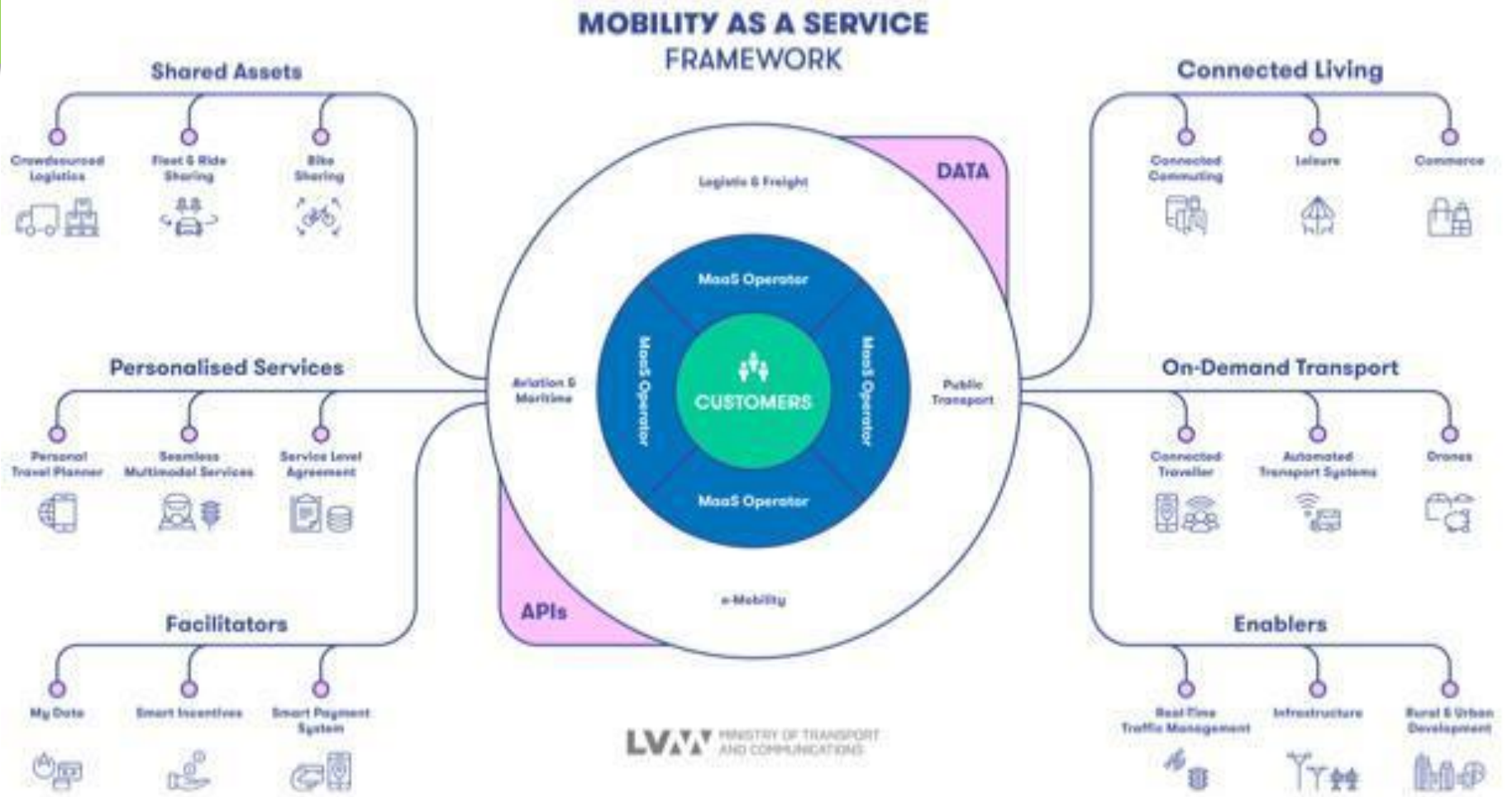


Yatri – Metro and Taxi

UMAAS – PRACTICAL OFFERINGS

- Plan, book, and pay for multiple types of mobility services
- Pay-as-you-go one off
- If not one off then, bundled transport service, monthly subscription
- MaaS Operator purchases transport services and provide guarantees
- Trip chains, technical and business relationships
- Total cost of business mobility

MAAS – NEED FOR OPEN DATA, PROTOCOL



Courtesy Mobility as a Service framework (Finnish Ministry of Transport & Communications, 2016)

MAAS APPROACH

- Marketplace for users, transport operators, integrators, mobility service providers
- Open but secure architecture, APIs
- Real-time secure access to in-vehicle data
- Clearly defined & secured ownership of data and revenues
- Possibilities to create scaling services

[Enabling Bus Centric Transport in Open Mobility Network](#)

SWOT IFY

- New eco system is emerging –players, intermediaries, business models – need acceptance; do not conveniently fit into the current regulatory framework
- ICT/ ITS still not in place, information asymmetry seen – even trip planning an issue
- Data is still not fully shared, less still open architecture, APIs
- More sandbox, more rigour, more pilots required (UMTC is at it)
- Technology now precedes and leads to regulations, but quick turnaround is the key
- Public metro, bus companies need to lead initially and make new player, partners
- Examples of NCR Metro – NCMC, KOMN, closed loop need to reconcile IT systems and data formats
- Multimodal, multi-provider integration – in all forms are essential infra, data, operations – Kochi can be the light house

SWOT IFY

- Clearly defined & secured ownership of data and revenues
- Need to ack, reward positive impacts and tax negative externalities
- UMTAs must play a greater role, passive approach or interventionist approach does not help
- MaaS has to be adopted at mass scale – to nudge out personal (car) mode
- Need to subsidize mobility subscription bundles for commuters
- Structuring mutually beneficial opportunities with partners
- Learn global, do local, go global

CONCLUSION

- May appear marginal, but has transformational impact
- It has to be strategic intervention
- Catalyst for innovative planning, chaining trips and offerings
- Provide a fair playing field and alternatives
- Bring behavioural change, not necessarily less travel
- Sustainable mobility and development goals



75
आज़ादी का
अमृत महोत्सव



सत्यमेव जयते

GOVERNMENT OF INDIA
MINISTRY OF HOUSING AND URBAN AFFAIRS



THANK YOU



URBAN MASS TRANSIT COMPANY LIMITED

G-09, G23, G24, GROUND FLOOR, SALCON RASVILLAS,

D-1, DISTRICT CENTRE, SAKET, NEW DELHI - 110 017

(L) PHONE : 011-41181300 TO 1302, FAX: 011-41181303

EMAIL: KISHOR.NATHANI@UMTC.IN | WEBSITE: WWW.UMTC.CO.IN

SOCIAL UTILITY RATINGS OF DIFFERENT MODES AND SERVICES

Criteria	Private vehicle (single)	Car-share	Exclusive ride sourcing and taxi	Pooled ridesourcing (ride splitting)	Private shuttles	Microtransit	Bike- and scooter-share	Public transit
Space use when in motion/congestion	1	2	3	4	6	5	7	8
Vehicle miles traveled	1	3	3	4	7	7	9	9
Cost to user	1	3	4	7	9	7	9	8
Curbspace	1	6	7	7	6	6	6	6
Carfree lifestyle	1	7	7	7	7	7	6	8
Health/active lifestyle related to use of service	1	7	1	1	5	5	10	7
Accessibility	5	5	5	5	5	5	5	10
Equity	2	5	4	5	5	5	6	8
GHG emissions	1	3	3	4	7	7	10	9
Social utility rating	Low	Medium	Low	Medium	Medium	Medium	High	High
Suburban applicability	Yes	Limited	Yes	No	Limited	No	Limited	Yes

Notes: Ranking on set of criteria. Scores of 1 to 4 represent little to no benefit to society, 5 represents a neutral social utility, and 6 to 10 represent a positive effect

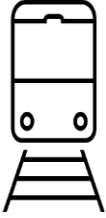
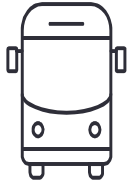
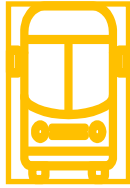
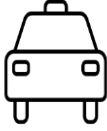
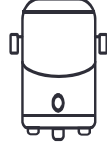
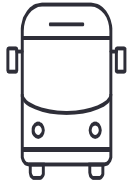
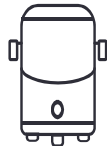
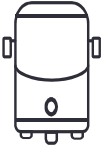
Source: Adapted from Seattle Department of Transportation 2017 Urban Mobility Index



Enabling Bus Centric Transport in Open Mobility Network

Powered by Beckn Protocol

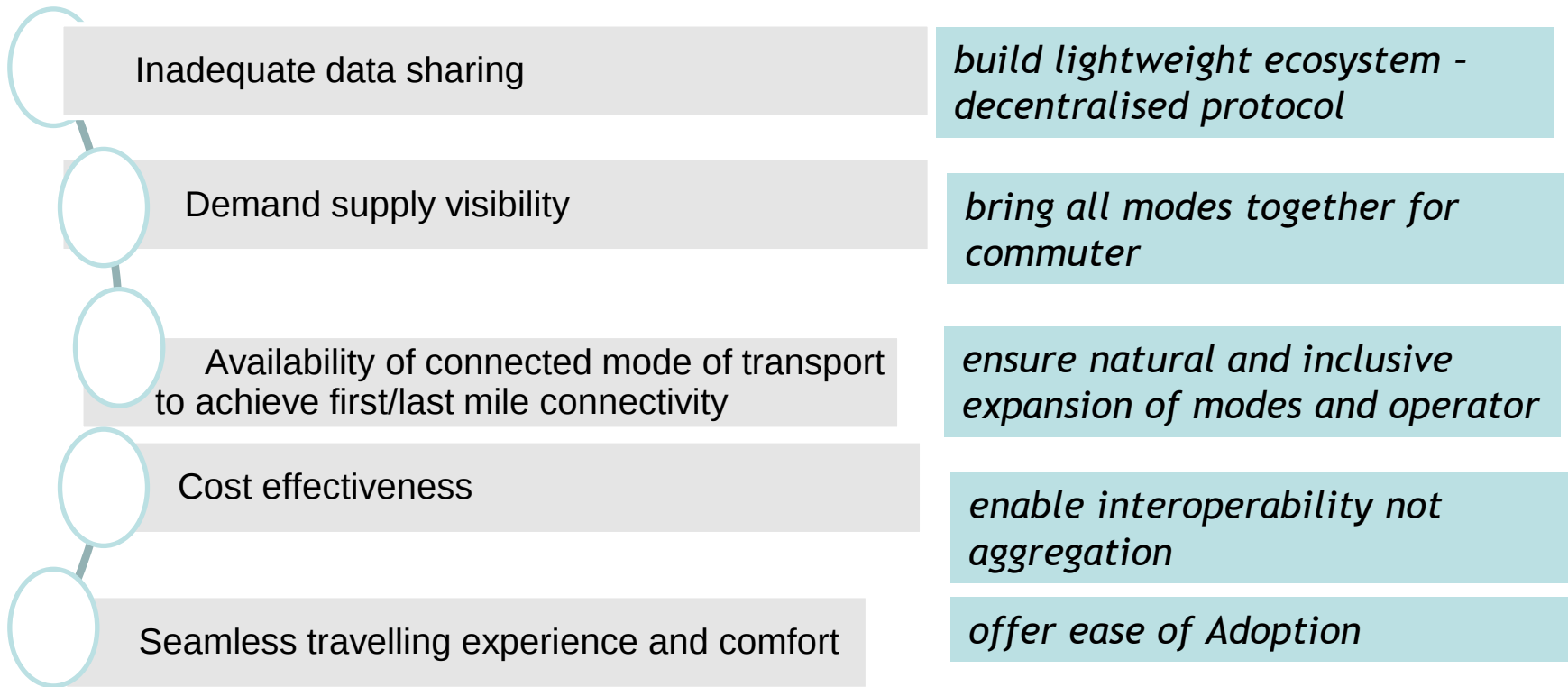
Bus – A Common Factor with

	Train	BRT	Bus	Radio cab	Auto	Bike share
Tier 1 Cities						
Tier 2 Cities						
Tier 3 Cities						

Problem Statement and Solution

Pain points

Can We..



Research Proposal...as Approved

- UMTC with the support of BECKn - is now at the stage to test open stack architecture/protocol and free to use open API specifications
- The developed architecture/ protocol already hosted on github
- Cities collaboration criteria, ITS implemented - Bhubaneswar, Chandigarh, Lucknow, Hubli Dharwad, Ahmedabad, Bhopal, Navi Mumbai
- Partner with (application) users and (application) providers - transactions across modes and commuters
- Provide Outcome Report and Roadmap for accelerated adoption

Call to Action

- Project Working Group (PWG) created - contributions to the protocol development, testing and roadmap
- PWG - Administrator & Transport SME, System Architect & API designer(s), Project Manager and Implementation
- What Protocol - covers design principles, ecosystem architecture, APIs and its documentation, schema and its documentation, communication & transaction mechanism, network actors; mobility specific extensions
- Which Protocols - Beckn enabled protocol for digital acceleration; open specs, equal access, non-rivalrous, non-exclusive
- On path to Bus Centric Open Mobility Network

Open Mobility Network is different from Platform Centric Network

- Network without a centre
- Open and inclusive by design
- Low-cost lightweight digital infrastructure
- Enables open and unrestricted competition
- Prevents market concentration
- Tech-policy-market led approach
- Encourage participation from irrespective of size
- Stimulate innovation at population scale

BeckN Protocol

- BeckN Protocol is an open, interoperable and universal transaction protocol to enable a decentralized digital economy
- It is set of open interoperable specifications which
 - It allows consumers and providers to connect to the network using any platform of their choice and transact with each other
 - Unbundles the idea of 2-sided platform-centric systems into multiple 1-sided platforms/apps forming an open network connected via the interoperable protocol layer

MOCI (BECKn enabled) Open Network for Commerce

The screenshot shows a web browser displaying the GitHub repository for 'Open Network for Digital Commerce (ONDC) Protocol Open API Specifications'. The browser's address bar shows the URL 'github.com/Open-network-for-digital-commerce/ONDC-Protocol-Specs'. The repository page includes a README.md file with the following content:

Open Network for Digital Commerce (ONDC) Protocol Open API Specifications

Latest Release

1.0.0-draft | March 15th 2022

Current Working Draft Version:

1.0.0-draft

Versioning Scheme

[Semantic Version Scheme 2.0.0](#)

Releases

ONDC Protocol Specification Version	Beckn Protocol Core Specification Version
1.0.0-draft	0.9.4-draft

ONDC is an ambitious initiative to democratize digital commerce by creating a decentralized network of buyer apps and seller apps through an interoperable protocol specification. ONDC Protocol is maintained by the Open Source Community to create API specifications, schemas and taxonomy for Retail, Logistics and other domains.

Please see [documentation](#) for understanding purpose, architecture, and the actual APIs. Participate in the [community discussions](#) to leverage ONDC Protocol as well as to contribute towards development of ONDC Protocol by providing ideas, reporting issues, contributing to documentation, and contributing code.

On the right side of the repository page, there are statistics and sections for Releases, Packages, and Contributors. The Contributors section lists four contributors: BLR-0118 Supriyo Ghosh, ruchy-ondc Ruchi Vashist, navdeep710 Navdeep, and AyushAgrawal25 Ayush Agrawal.

Core Specifications on Github

The screenshot shows the GitHub repository page for 'beckn/protocol-specifications'. The repository is public and has 108 stars, 37 forks, and 14 watchers. The 'Code' tab is selected, showing a list of files and their commit history. The files include 'core/v0', 'docs', '.gitignore', 'CHANGELOG.md', 'CONTRIBUTION.md', 'GOVERNANCE.md', 'LICENSE.md', 'MAINTAINERS.md', 'README.md', and 'WORKING-GROUPS.md'. The 'About' section on the right provides a brief description of the repository: 'Core protocol specification for peer-to-peer consumer-provider interaction'. The 'Releases' section shows the latest release, 'core-0.9.3', dated Dec 22, 2021. The 'Packages' section indicates that no packages have been published. The 'Contributors' section shows 13 contributors.

GitHub - beckn/protocol-specifications

Public

Notifications Fork 37 Star 108

<> Code Issues 28 Pull requests 2 Discussions Actions Projects 1 Wiki Security Insights

master 5 branches 20 tags

Go to file Code

About

Core protocol specification for peer-to-peer consumer-provider interaction

Readme View license 108 stars 14 watching 37 forks

Releases 1

core-0.9.3 Latest on Dec 22, 2021

Packages

No packages published

Contributors 13

File	Commit Message	Time Ago
core/v0	Added document object	7 months ago
docs	Merge pull request #163 from beckn/draft-fixes	7 months ago
.gitignore	Initial commit	2 years ago
CHANGELOG.md	Update CHANGELOG.md	7 months ago
CONTRIBUTION.md	Added link to community guidelines	3 months ago
GOVERNANCE.md	Update GOVERNANCE.md	6 days ago
LICENSE.md	Adding CC-BY-NC-SA License	last month
MAINTAINERS.md	Update MAINTAINERS.md	last month
README.md	Update README.md	last month
WORKING-GROUPS.md	Content changes and network policy	9 months ago

README.md

Mobility Specifications on Github

The screenshot displays the GitHub repository page for `beckn/mobility`. The repository is public and has 3 branches and 0 tags. The commit history shows a merge pull request #4 from `techframework/seq-diagrams` on Feb 17, with 9 commits. The repository structure includes folders `archive`, `core`, `docs`, and `on-demand-cabs`, and files `.gitmodules`, `CONTRIBUTORS.md`, `LICENSE.md`, and `README.md`. The commit history shows the first commit with contributors for most files, and the README was updated 7 months ago.

The `README.md` file is displayed, showing a table with the following structure:

title	metaTitle
Beckn Protocol Specification	API Specification for Beckn Network Developers

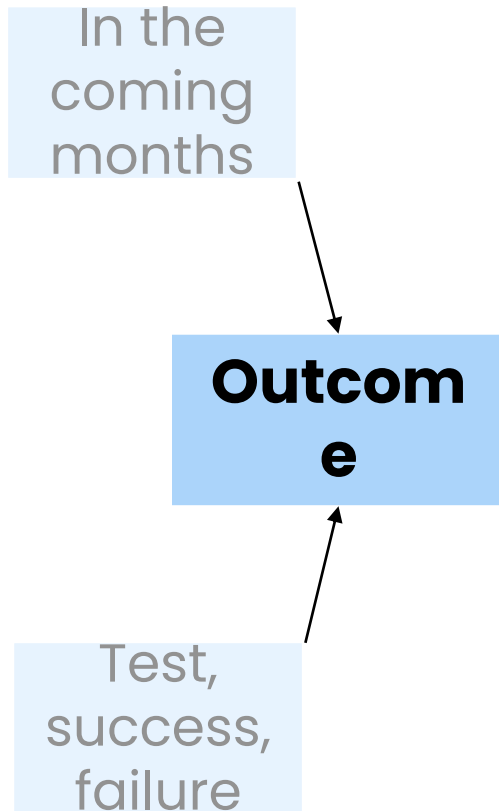
The right sidebar shows the repository's metadata: Beckn protocol specification for the domain of mobility, 0 stars, 1 watching, 2 forks, and no releases or packages published. The contributors section shows 2 contributors.

Key Transactions supported by Beckn Protocol

- BeckN enabled network breaks down any transaction in following request / call-back APIs:

Discovery	Ordering (Booking)	Fulfillment	Post-fulfillment
☐ Consumer can search the product and services, and can see the results from all providers	☐ Consumer can select products and services and proceed for checkout, make payments and receive confirmation	☐ Consumer check the status of order, can modify as specified, track the order and can cancel order and claim refund as applicable	☐ Consumer can check rating by other consumers, rate product and services and seek support

Actionable Visualization



- ✓ In **Lucknow**, Abhishek uses **Telegram** from his home in **Aliganj** to **search** for a **ride** till Lucknow Jn.
- ✓ Abhishek receives a list of **ride options**- (a) throughout **cab**, (b) **cab** till IT College and then **metro**, (c) **auto** till IT College and then **metro**, (d) **auto** till new Aliganj bus depot and then a **bus** ride.
- ✓ He views the options and looks into the details of the last one (**auto+bus**). This was a combination of responses from Lucknow Bus Services (**LBS**) and ANI Tech(**Ola-auto**).
- ✓ Abhishek chooses this one and requests a **price quote**. After receiving a quote of 170/- he **accepts** and requests for **payment options**.
- ✓ He then adds his **new credit card** as the payment method, authorizes it with 2FA through **Juspay gateway** and makes the **payment**.
- ✓ He gets a **confirmation notification** along with a **confirmation no.**
- ✓ The auto reaches within 7 mins and Abhishek could **track** it throughout the duration.
- ✓ On completion of the ride, Abhishek **rated** the auto driver with a 5-star and timeliness of the bus-service with 3-star with a **feedback** of improving punctuality.



Raj



Home

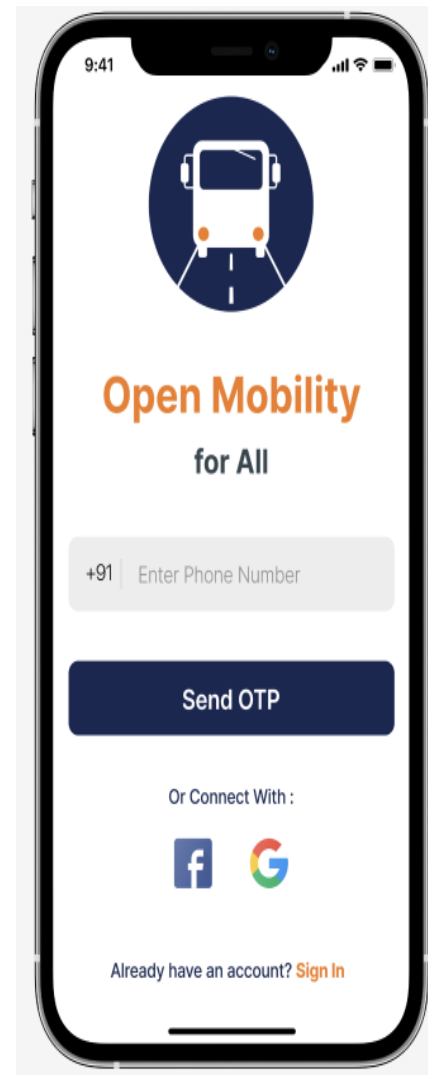


Mall

Launch Open
Mobility
application



Beckn Protocol
Enabled
Mobility App





Local
Mobility
BAP

BG

Local
Mobility
BPP

Mr Raj sees the confirmed ticket on his screen

BAP consolidates order confirmation from BPP

on_confirm

BPP generates order object with latest fulfilment status and returns via on_confirm

Mr Raj sees the latest status on his screen

BAP updates the current status

on_status

BPP sends the fulfillment status via on_status

Mr Raj sees the latest status on his screen

BAP updates the current status

on_status

BPP sends the latest status via on_status

Mr Raj sees the updated trip status and an option to rate the trip

BAP records the trip as complete

on_status

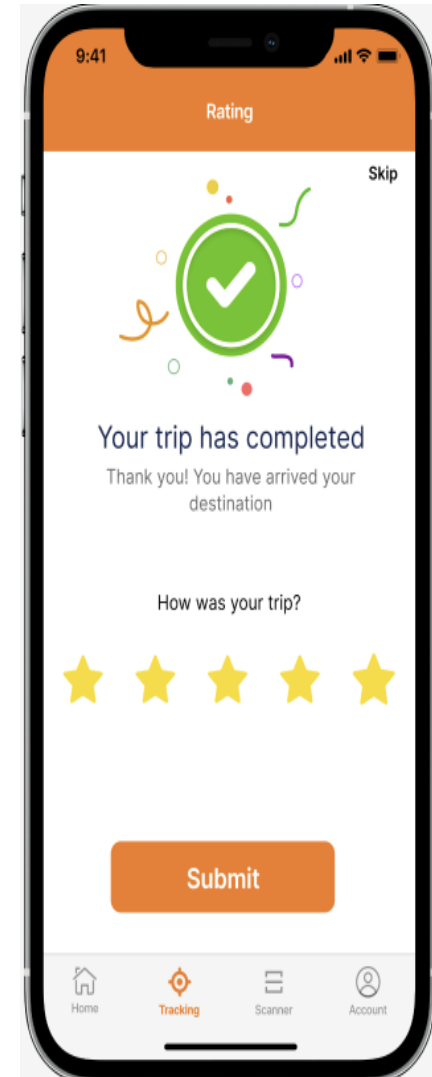
BPP sends the completed status via on_status

Mr Raj provides a rating for the service

BAP sends the rating info to the BPP via rating

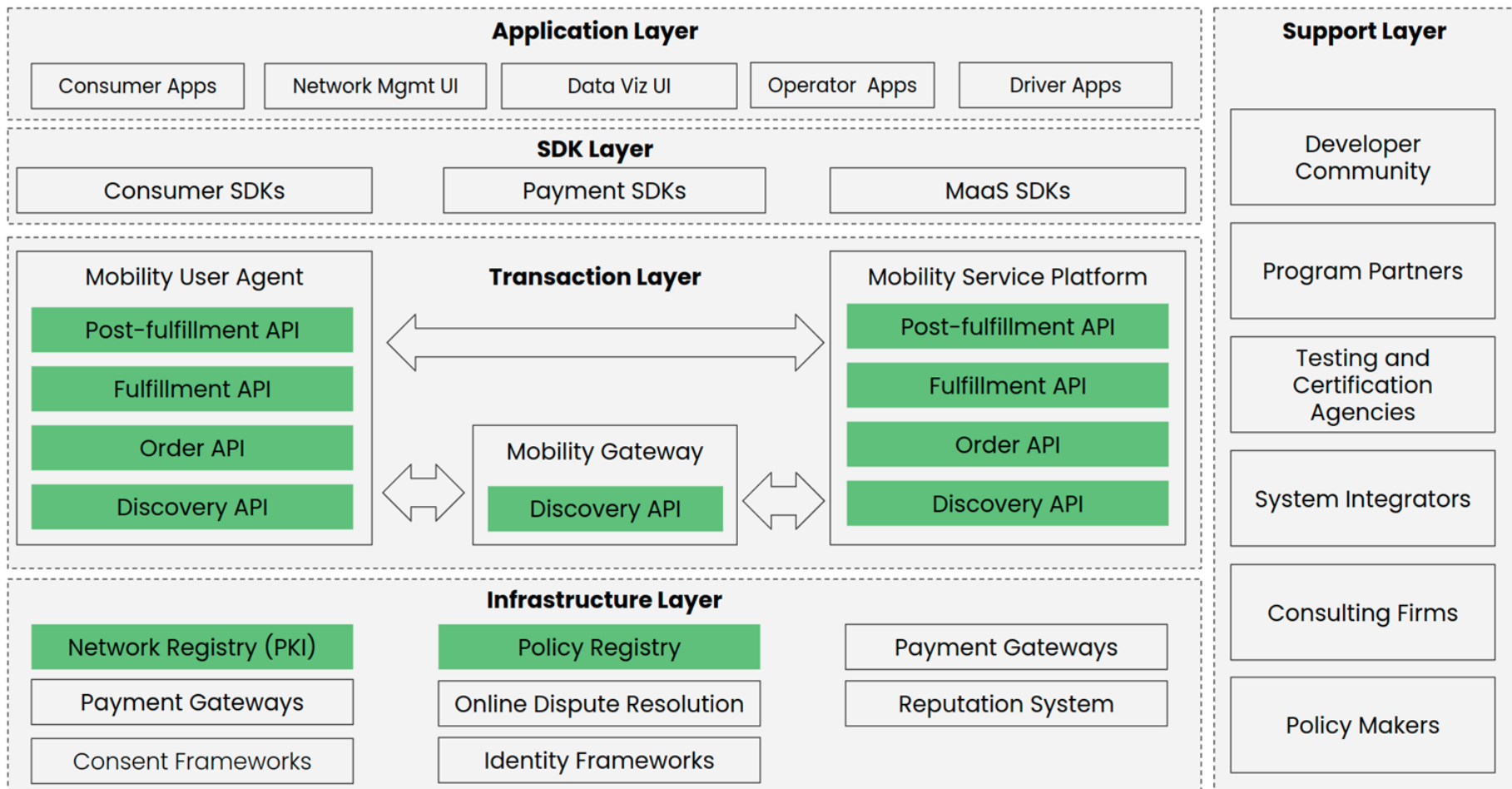
rating

BPP stores the rating and consolidates the cumulative rating of the service



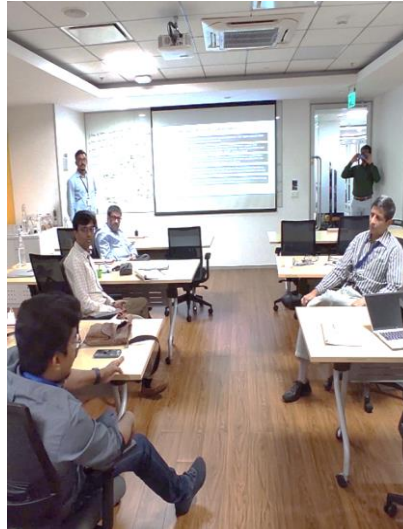
Beckn Protocol – Mobility Ecosystem Architecture

Specified under beckn protocol



Activities

- Exhaustive PWG deliberations over the last months...
 - deeply understand the architecture and elements of the BeckN protocols
 - leverage the learning of Kochi Open Mobility Network
 - Need to leverage gateway providers and super apps for pilot implementation
 - Onboard the cities



Evolved Outcomes of Study

