An Open Source Statewide Data Warehouse: Existing Software, Necessary Functionality, and Required Policies

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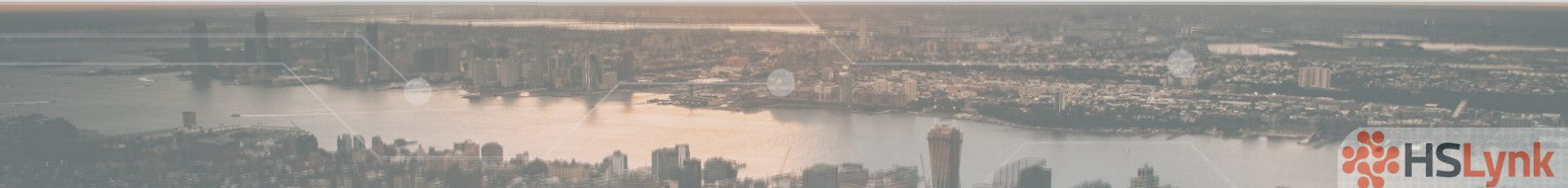
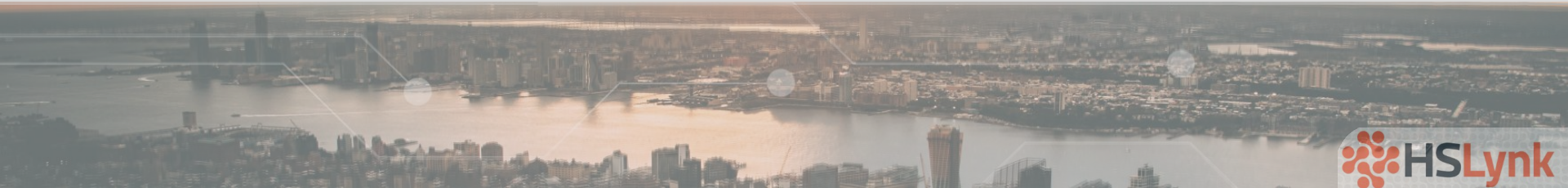


We will talk about today

- our background
- the need
- requirements
- solutions
- discussion



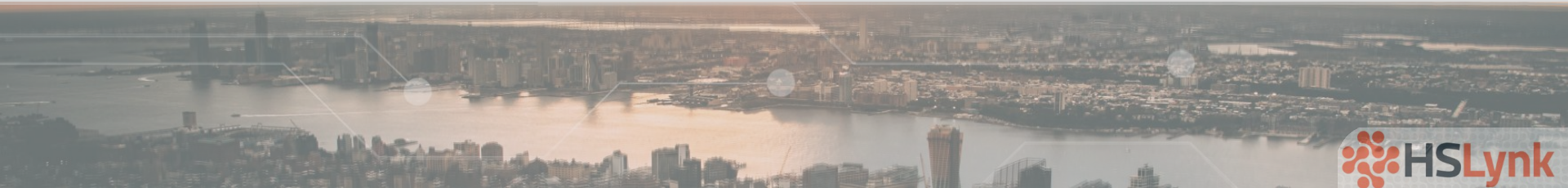
About Us

Who we are. Why we started this project, and how it began.

- We are human services professionals dedicated to providing tools that enable people to solve social problems
- We've collectively built many successful systems in the past
  - Feeding America
  - HUD Data Standards
  - Integrations/middleware
  - Sarasota HMIS

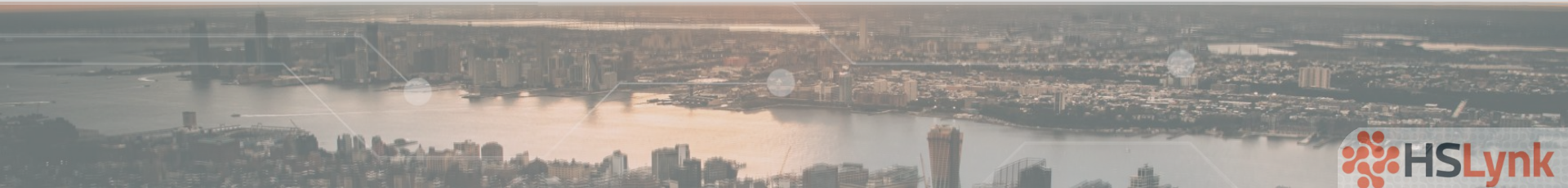
The Current Landscape of HMIS Systems

- There are limitations to existing HMIS systems
  - Data can be lost when switching vendors
  - Customization
    - is expensive
    - not shared with other customers
    - unsupported over time
  - Reporting is slow
  - Data not shared with the community outside of the system



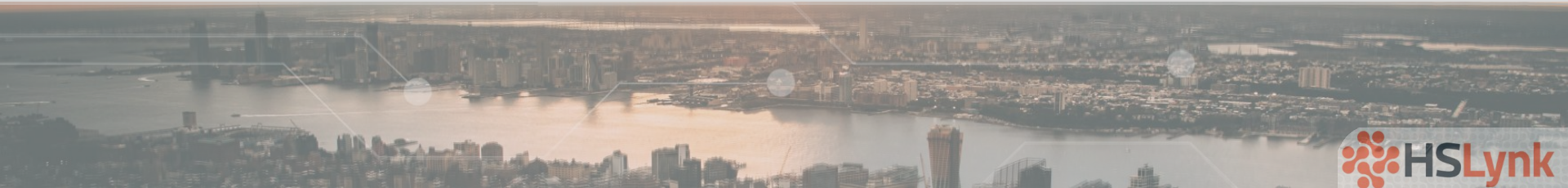
Why a Data Warehouse?

- Aggregate data via import
- Compare data across the regions
- Non Duplication - get a true total count of homelessness
- Homeless services
    - Total picture of service utilization



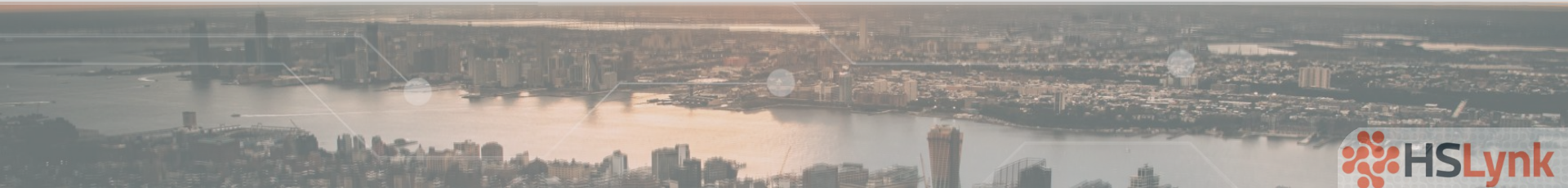
Why a Data Warehouse? (continued)

- Easily transfer data to and from contributing systems
- Dedupe clients from different systems
- User defined analytic and reporting tools
- Policies - consent, permissions, fine-grained access controls, authorized uses, etc.



Data Warehouse Policy & Procedural Requirements

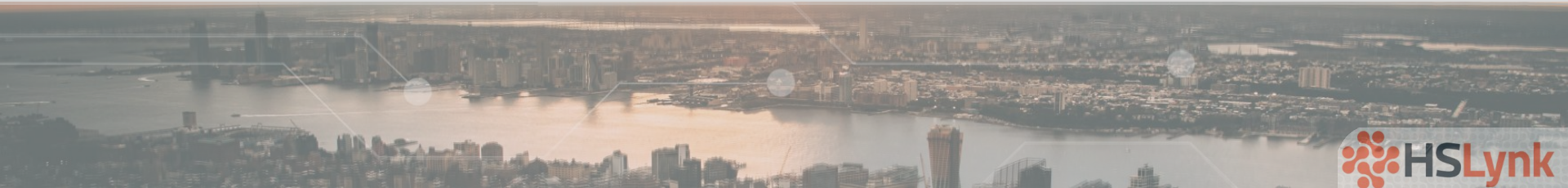
- HIPAA logging, Notifications, Client Consent
- Internal Sharing Rules, Access Controls, Warehouse Views
- Business Associates Agreements and Customer Service Agreements
- Institutional Review Board approval for Research Projects
- Security and Breach Policies, and Encryption



Communities Deserve A New Type Of Data Warehouse

Current Warehouse Landscape

- Closed source
- Closed systems
- Commercial off-the-shelf warehouses do not have human services features, like Master Patient Index
- Not a good fit to take HMIS and repurpose
- User seat license, not usage based

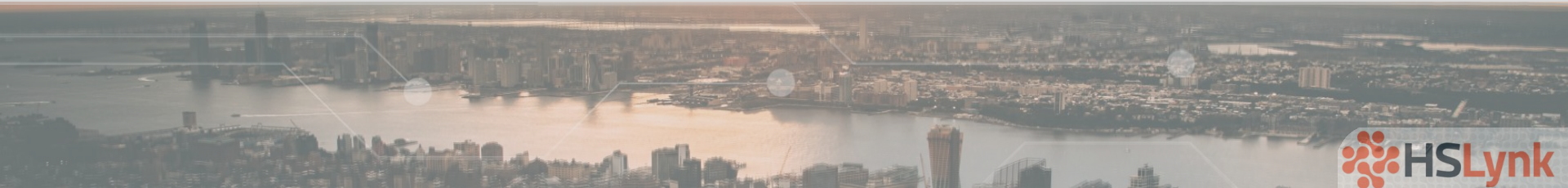


Communities Deserve A New Type Of Data Warehouse (continued)

Our experience in HMIS and other social services efforts told us what should be done.

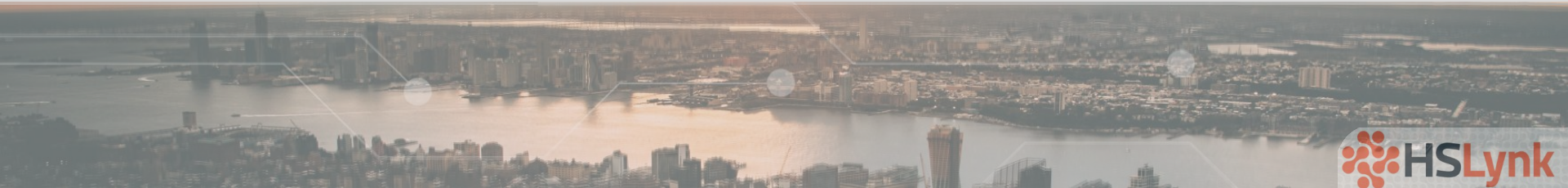
Communities need better solutions and more options.

- Community should own their data.
  - Data stays put until the community is ready to move it



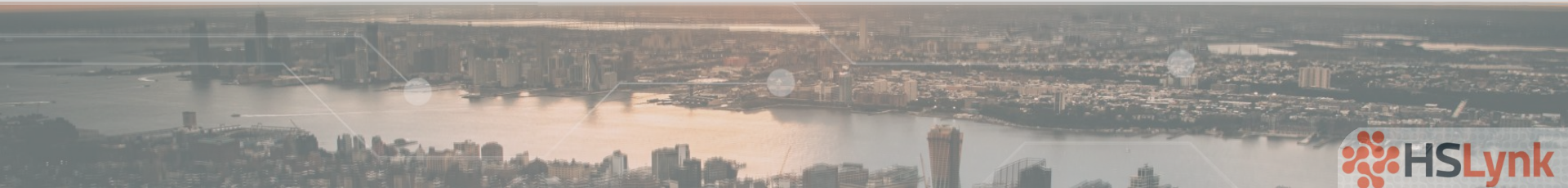
Communities Deserve A New Type Of Data Warehouse (continued)

- “Walled Gardens” should be broken down
  - Users can share data
  - Users can use the apps of their choice and reporting tools of their preference



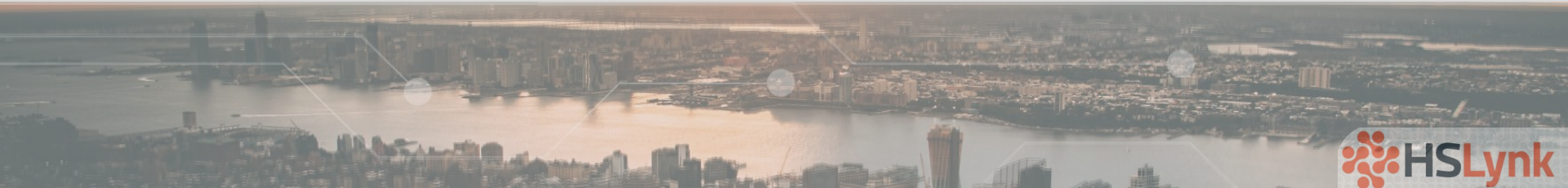
Communities Deserve A New Type Of Data Warehouse (continued)

- Data Warehouses offer a broad opportunity for an open source platform
  - Everyone benefits from contributed improvements.
  - More improvements are added quicker by the brightest minds in the industry
  - Build a legacy for the World.



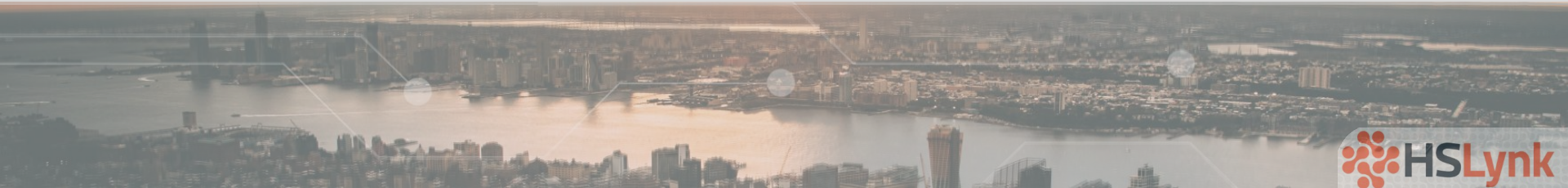
Communities Deserve A New Type Of Data Warehouse (continued)

- Flexibility for Reporting Use BYO Reporting Tools
  - Different tools for different users
    - Data Scientists
    - Business Analyst
    - In-app Users



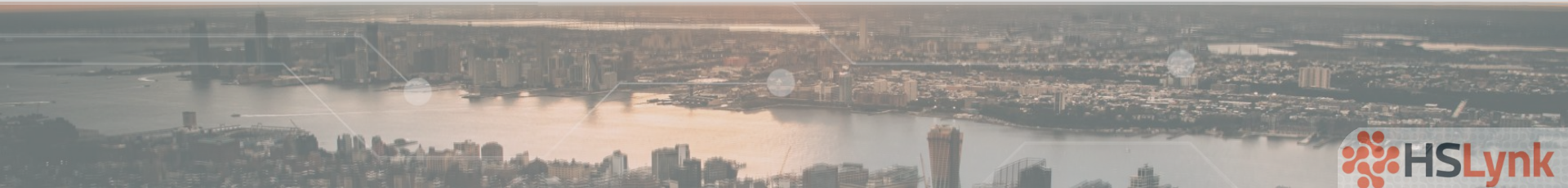
Communities Deserve A New Type Of Data Warehouse (continued)

- Handle quick reporting on huge amounts of data
  - “Big Data” Analytics - near real time reporting
  - Receive files from any system in standard HMIS formats



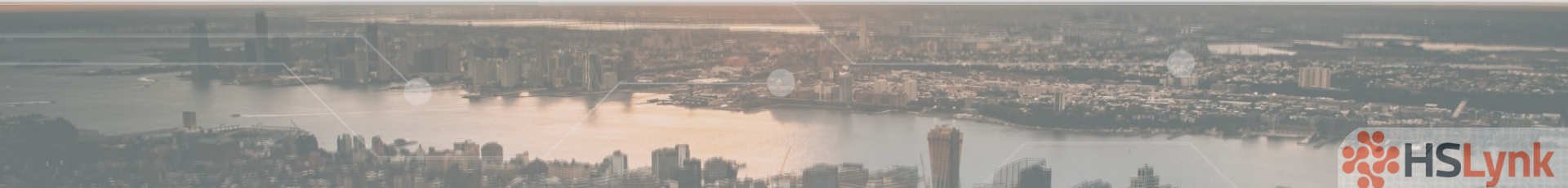
Communities Deserve A New Type Of Data Warehouse (continued)

- Ability to integrate other community data for comparison purposes (Linked Data, add your own custom data sets)
- The Cloud offers best in class performance and uptime
  - Scalable
  - Cheaper to maintan
  - Security
    - VPC, lock it down, features

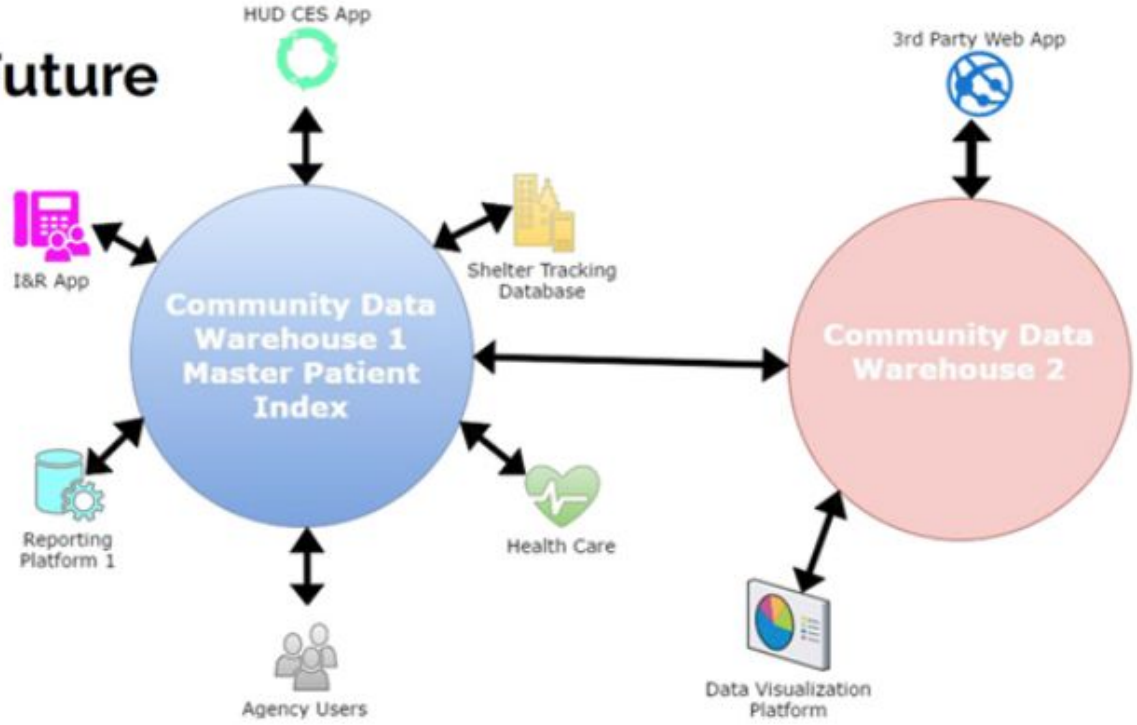


Communities Deserve A New Type Of Data Warehouse (continued)

- Service utilization across regions
  - Deduplication
    - Master Patient Index (from Health Care open source)
  - A single source of truth



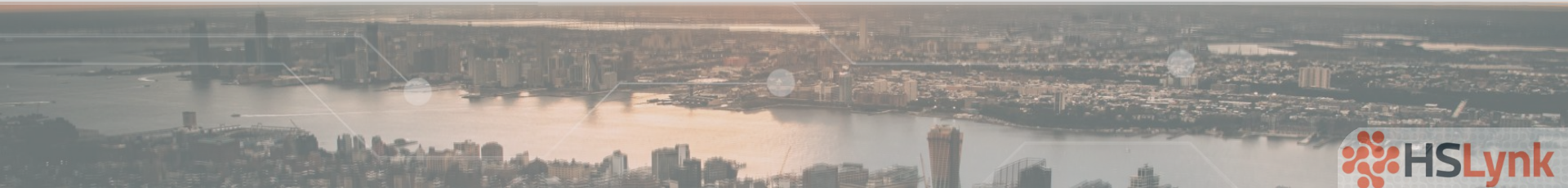
Future



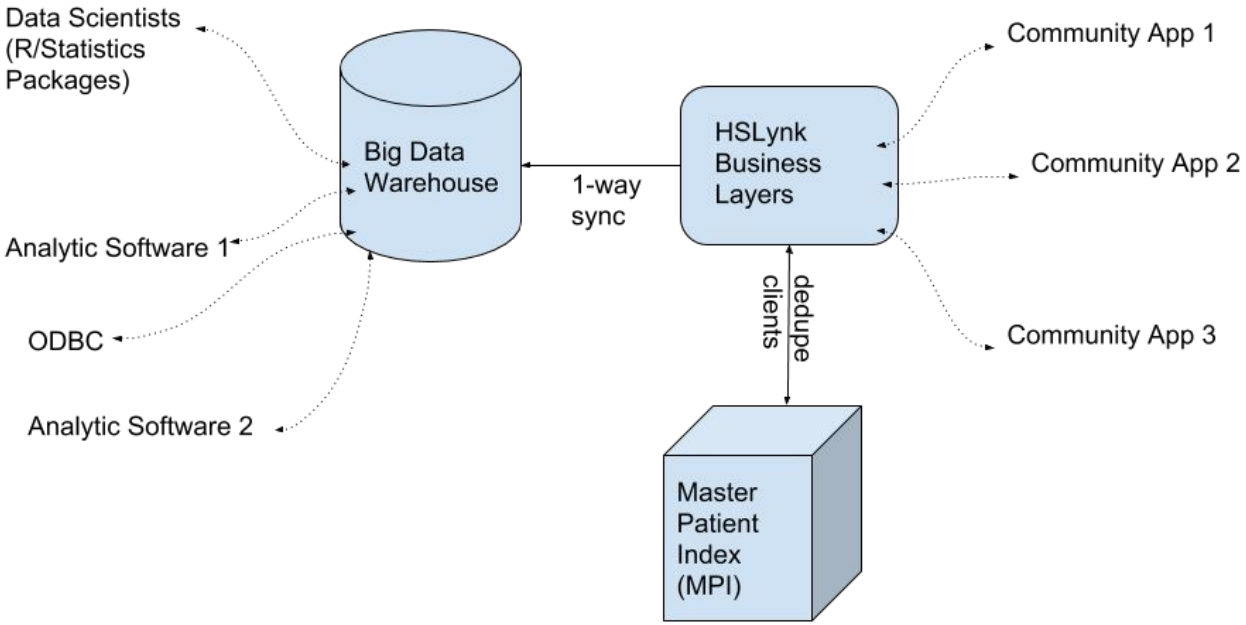
HSLynk

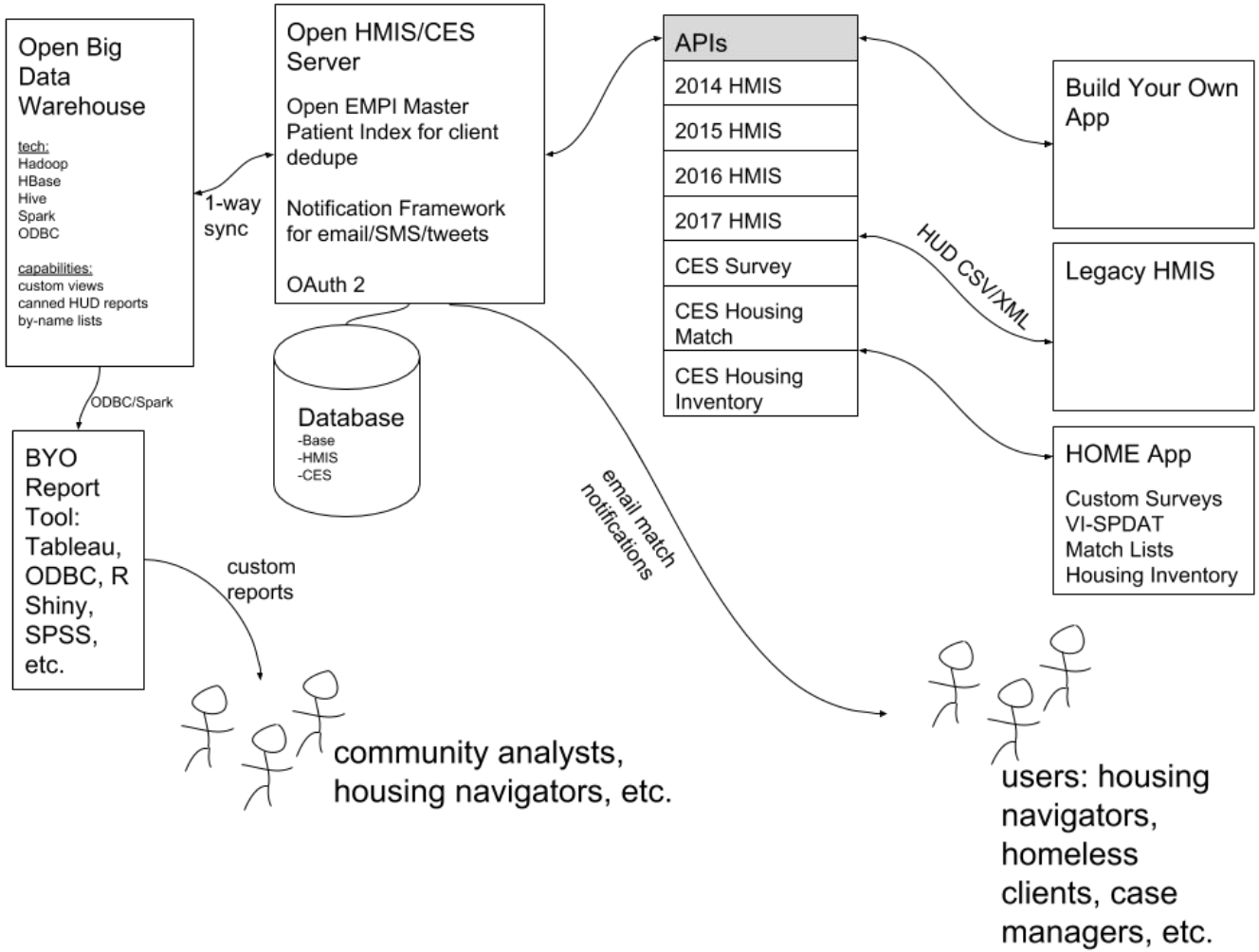
HSLynk is outside the box of the traditional warehouse

- A warehouse that can also orchestrate and link together other systems.
  - hooks for connecting with other apps and systems (APIs)
  - sync up with other data sets (health, community data)
- Drive outcomes in a community with apps, not just generate reports
- Work with other warehouses



Warehouse 1: HSLynk in the Community

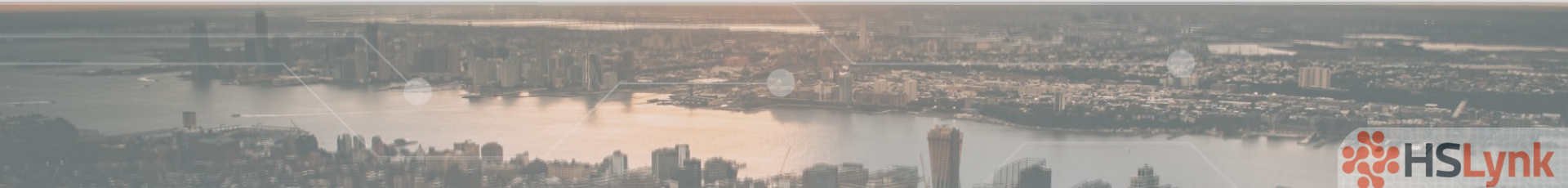



Open Big Data Warehouse
tech:
Hadoop
HBase
Hive
Spark
ODBC
capabilities:
custom views
canned HUD reports
by-name lists
1-way sync
Open HMIS/CES Server
Open EMPI Master Patient Index for client dedupe
Notification Framework for email/SMS/tweets
OAuth 2
APIs
2014 HMIS
2015 HMIS
2016 HMIS
2017 HMIS
CES Survey
CES Housing Match
CES Housing Inventory
Build Your Own App
HUD CSV/XML
Legacy HMIS
HOME App
Custom Surveys
VI-SPDAT
Match Lists
Housing Inventory
ODBC/Spark
Database
-Base
-HMIS
-CES
BYO Report Tool: Tableau, ODBC, R Shiny, SPSS, etc.
custom reports
email match notifications
community analysts, housing navigators, etc.
users: housing navigators, homeless clients, case managers, etc.

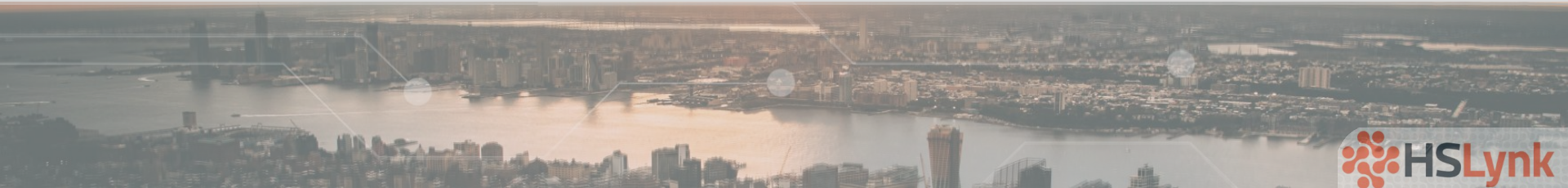
HSLynk

HSLynk: Solution

- Open Source

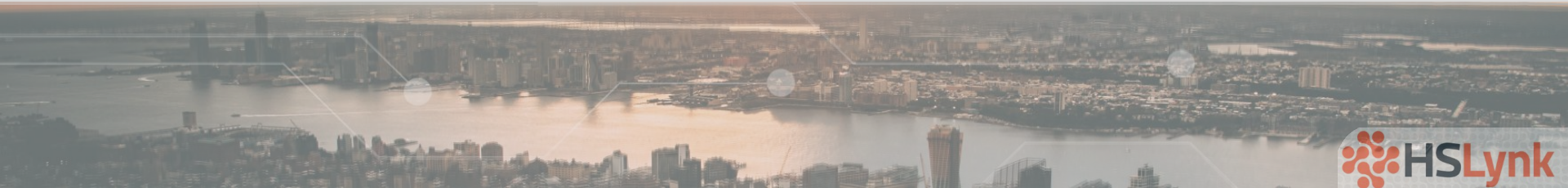


- APIs for apps to access



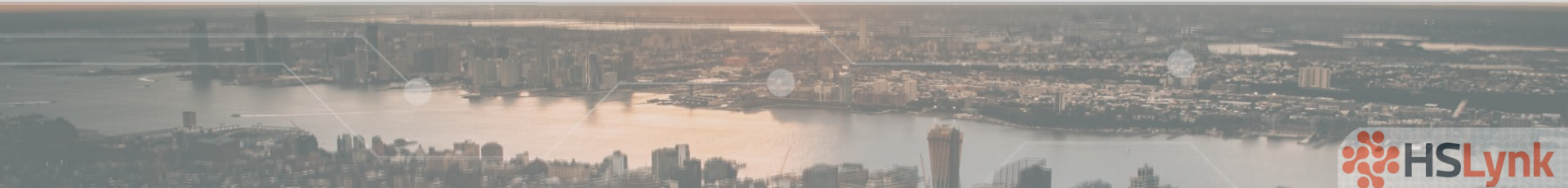
HSLynk: Solution (continued)

- Cloud based, scalable



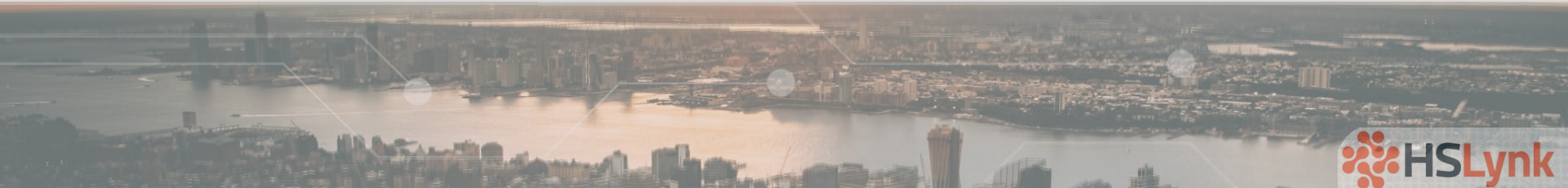
HSLynk: Solution (continued)

- Doesn't require any specific application (though they are available)

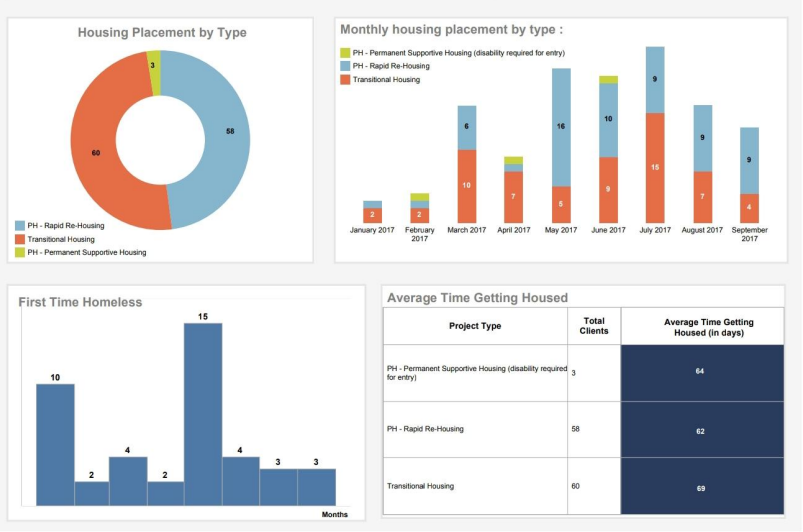


HSLynk: Solution

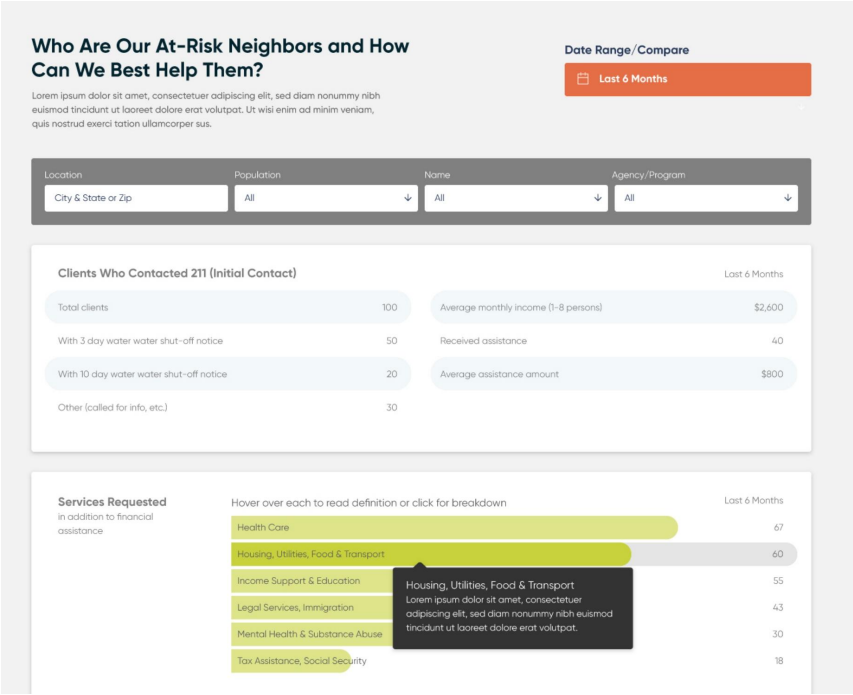
Bring Your Own Reporting and Analytics tools, and connect it to the Big Data Warehouse

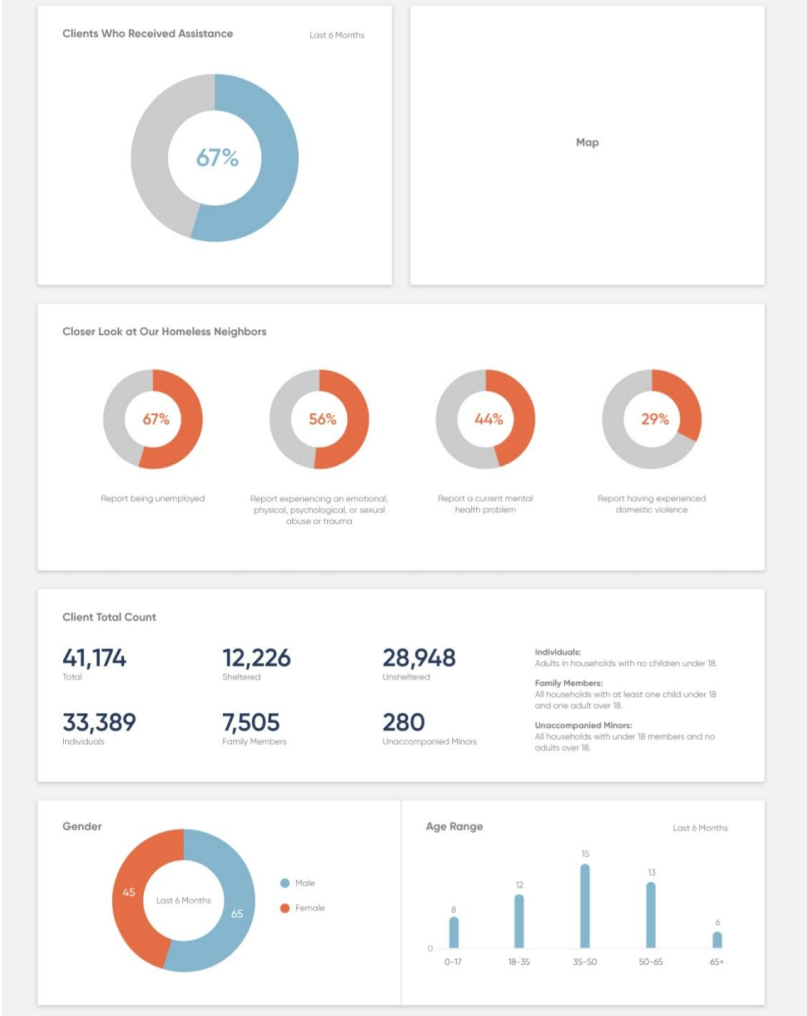


Reports made with “Bring Your Own Reporting Tools”



Reports made with “Bring Your Own Reporting Tools” (continued)

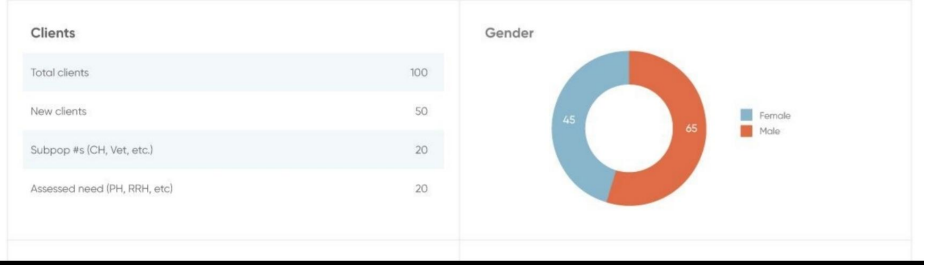




Reports made with “Bring Your Own Reporting Tools” (continued)

Referred from health care (or other source)

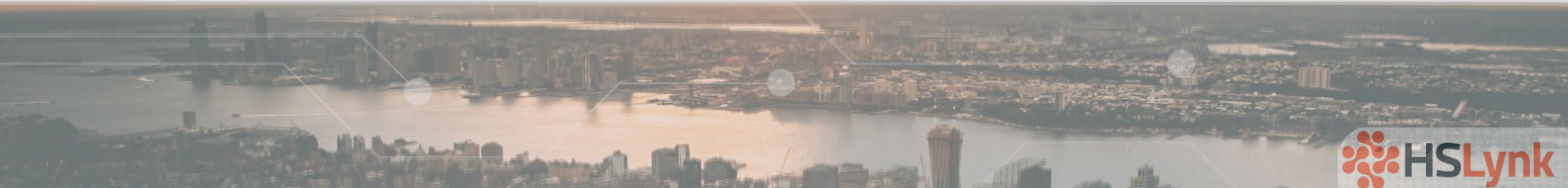
Self-reported disability/issue



HSLynk is a Partnership Driven Solution

- HSLynk came online in 2016 as a Coordinated Entry system
- Our first app partner CTA developed the “HOME” app
- We are the backend engine
    - built with HMIS Data Standards and a Master Patient Index at its core

Video of HOME App Example Application that is powered by HSLynk



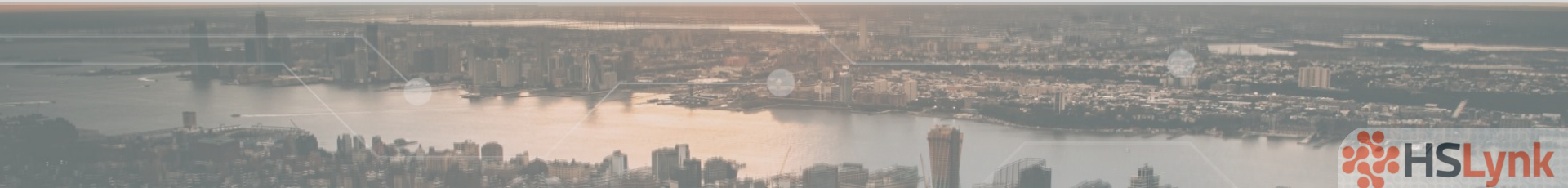
Where we are now

Many communities using HSlynk for:

- HMIS
  - collect HUD data elements, enroll clients
  - importing HUD CSV and XML for warehousing
  - APR Report
- Analytics
  - mashing up human services data sets
- Coordinated Entry
  - Custom Survey Builder (with VI-SPDAT built in)
  - Housing Inventory
  - Housing and Utilities Match (with customizable match workflow)

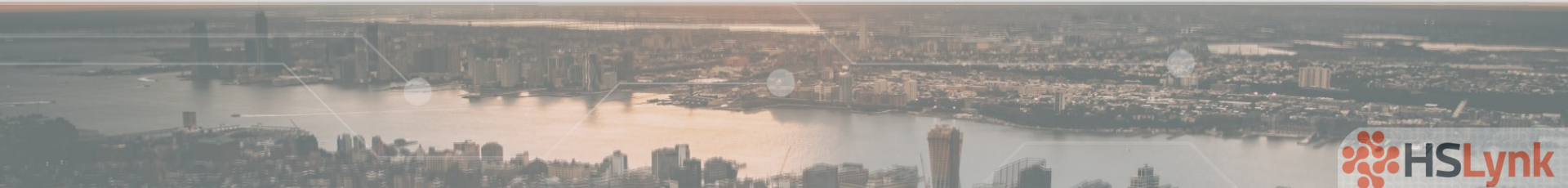
Possibilities

- Regional warehouses
  - don't necessary have to do statewide



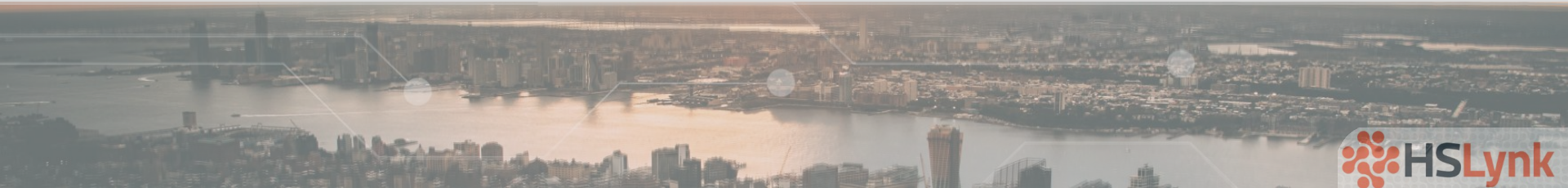
Possibilities (continued)

- Coordinated Entry APIs for orchestration of cross-regional resource matching,sharing, and reservation requests
  - not just housing
  - share with Information & Referral systems



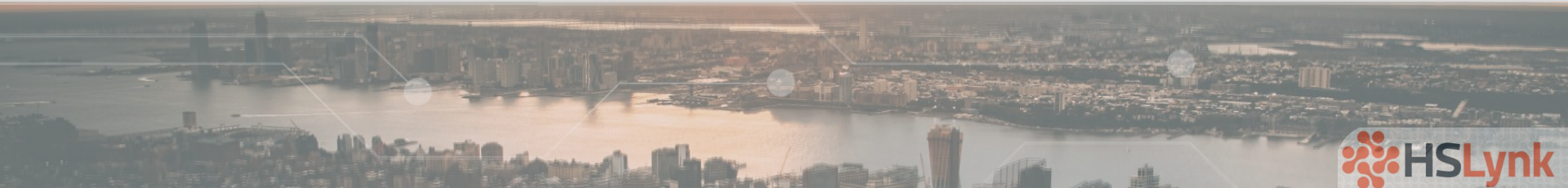
Possibilities

- Statewide Big Data Analysis across all Florida CoCs
  - overlays of:
    - predictors of chronic homelessness
    - social determinants of health - mash-ups with other health, human services, and Linked Data sets
    - successful outcomes and proven services pathways, common trajectories
- Statewide unduplication



Possibilities (continued)

- Single Statewide HMIS (with many different apps being simultaneously run)
- Other



More information about HSLynk

http:/hslynk.com

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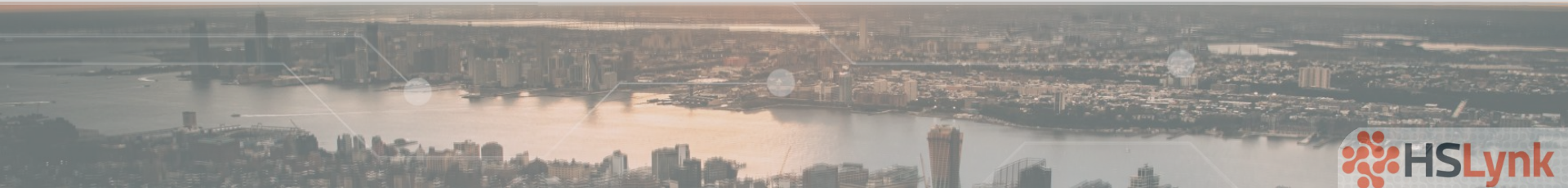
- Bob Russell, Community Technology Alliance CEO, bob@ctagroup.org

  [creators of HOME App and Analytic Dashboards from video presentation]



Discussion