



WAV Group

# EMERGING **DATA SOLUTIONS** IN REAL ESTATE



# BACKGROUND OF DATA MANAGEMENT IN REAL ESTATE

Non-technical executives in real estate may have followed along as data management systems that underpin our industry have evolved.

This paper will provide you with an understanding of the emergence of standards adoption from three different classes of our industry the brokerage class (Upstream, Dash), the MLS vendor class (Trestle™, Spark, The Grid ), and the technology vendor class (Bridge, Listhub).

# TABLE OF CONTENTS

## INTRODUCTION

Background of Data Management in Real Estate	4
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## NAR POLICY MANDATES TERMINATION OF RETS 8-9

Impact of the Web API Adoption Requirement	9
The Cost of Conversion From RETS Has Hindered Adoption	10
Web API Update to Replace RETS Update	11

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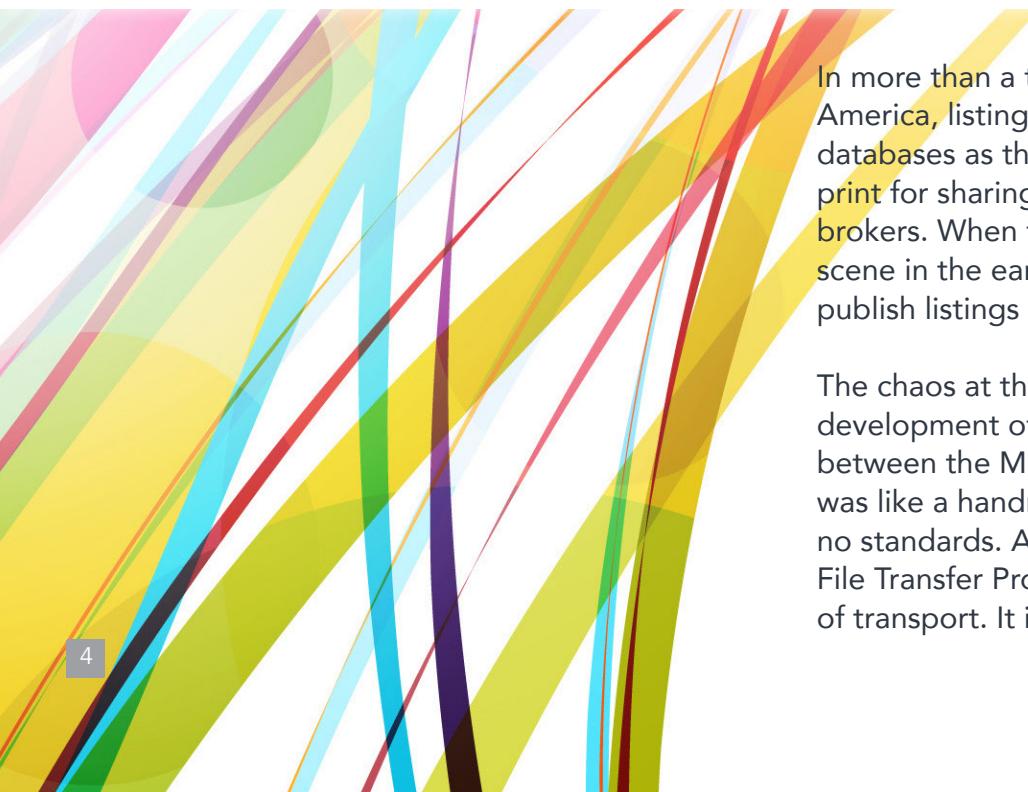
## EMERGING DATA SOLUTIONS IN REAL ESTATE 12

Brokerage Class Data Solutions	12
Upstream (New)	13
MLS Vendor Class Data Solutions	16
The MLS Grid (New)	16
CoreLogic® Trestle™ (New)	20
Spark by FBS Data, makers of FlexMLS™	22
Bridge™ by Zillow Group®	23
Listhub®, by MOVE®, Inc.	25



THE JOURNEY BEGAN IN AN ERA  
OF ALL CUSTOM DATABASES

# CHAOS.



In more than a thousand MLS regions around America, listing books were transformed into databases as the industry sunset the use of print for sharing listings among cooperating brokers. When the internet arrived on the scene in the early 90's, brokers raced to publish listings online.

The chaos at the time required the development of a fully custom connection between the MLS and the broker's website. It was like a handmade tailored suit. There were no standards. A distribution protocol called File Transfer Protocol was the common method of transport. It is like loading all the MLS data



**“** During this period, professionals, and consumers adopted smartphone and tablet technologies that significantly impacted the requirements for data management.



on a train and sending it to the broker's vendor. FTP basically copied the same database from one location to another every day or so. It required the duplicate storage of the information.

During the 90s, brokers suffered the stifling effects of custom solutions in two ways. First, there were no standard rules for how MLS data was displayed online until the National Association of REALTORS, in collaboration with brokers, MLSs, and technology vendors, developed the Internet Data Exchange (IDX Rules and Regulations).

The second form of data and transport standardization which occurred in the late 1990s was an effort to streamline the transportation of databases and get away from FTP. Before the Real Estate Standards Organization (RESO) was formed, the industry began to adopt an industry specific transfer protocol for data called the Real Estate Transaction Standard (RETS). The significant contribution here is that the entire MLS database did not need to be moved every day. RETS allows for incremental updates. Effectively, once technology vendors have loaded the full database one time, they can just request new listings and updated listings every day along with a notice to remove listings that are sold or off market.

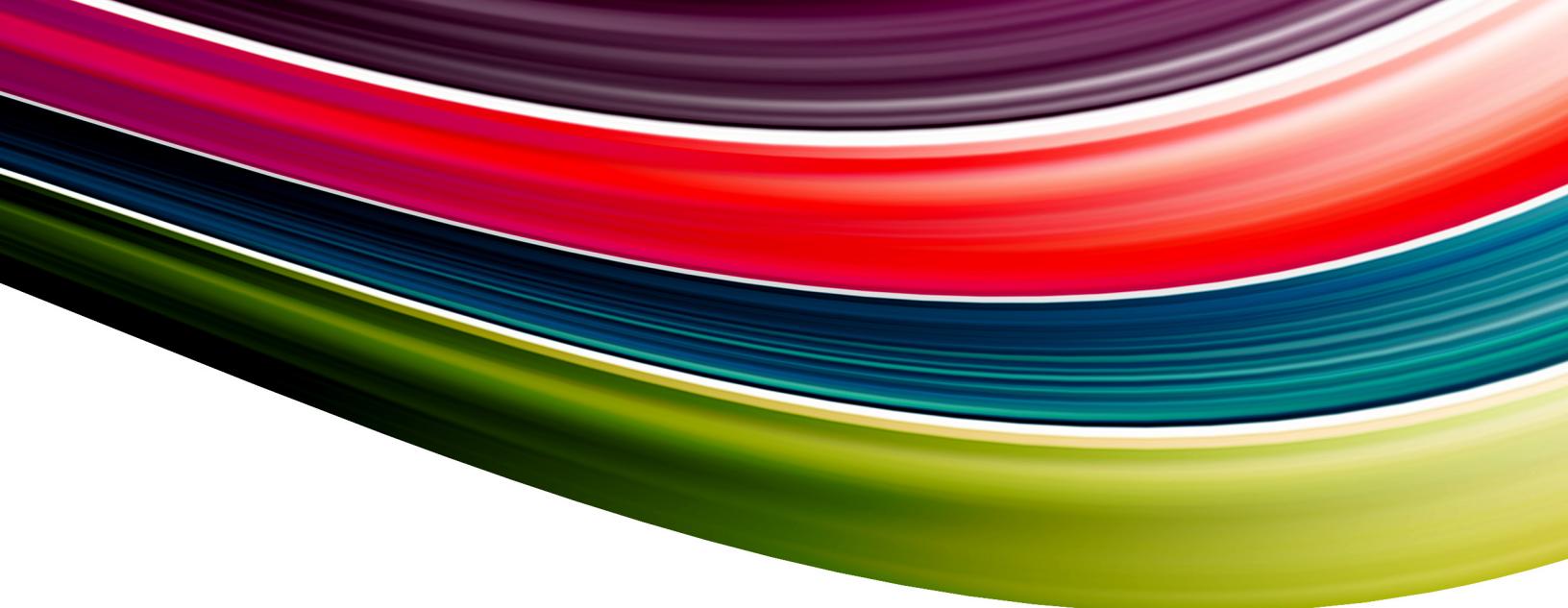
With FTP, all MLS data was transported every day. The major innovation of RETS was incremental updates whereby only the changes in MLS data are transported.

RETS was a major advancement. Rather than moving and copying the entire database every day, you only need to copy the changes. It used less bandwidth, and because the changes are fewer, it was much faster and more efficient. The transformation allowed technology providers to update the data in broker applications as quickly as every 15 minutes, and reduced the bandwidth costs of transporting the data across the internet. Overall, the cost of solutions like IDX saw performance enhancements and reduced the cost to the broker and agent.

The RETS era, which is now being phased out, allowed for an explosion of imagination around how real estate data could benefit brokers, agents, and the consumers they serve. From the early days of simply using MLS data for a website, now brokers and agents leverage around 64 different categories of technology solutions. (For a list of these product categories, visit [RETechnology.com](http://RETechnology.com)).

From 1999 to 2015, RETS was the standard required by all MLSs operating under the MLS Policy of the National Association of REALTORS (NAR).

Due to the size and storage constraints of mobile devices, you cannot transport and store the entire MLS database on a smartphone. As the push to mobile impacted all technology applications, Application Programming Interfaces (APIs) were developed, and transformed data management again.

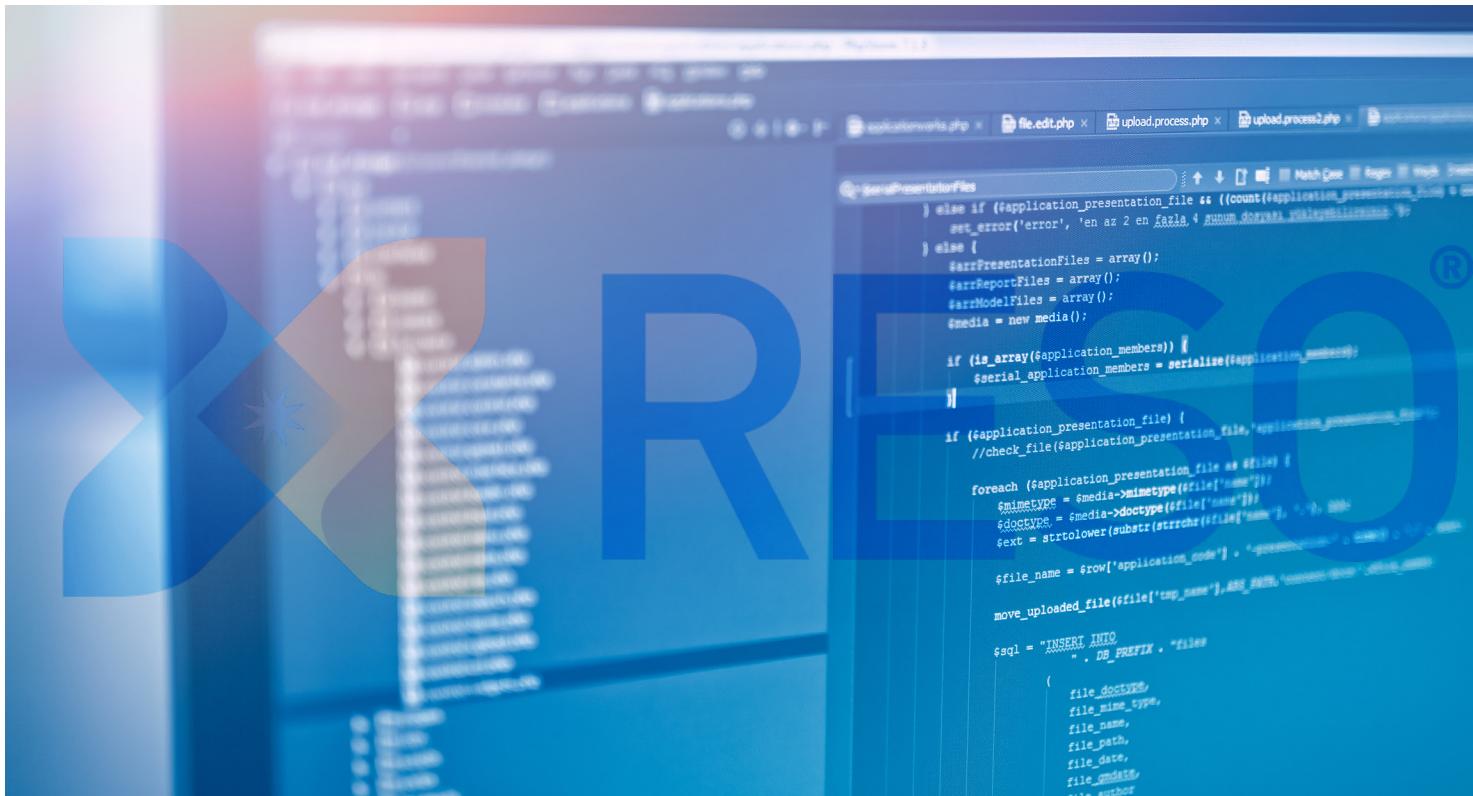


The entire universe of technology solutions (all industries) operating in the cloud use APIs of some sort for data management  
**(Thank you iPhone).**

The real estate industry was falling behind with its custom, industry specific RETS system that does not easily communicate with other databases and applications. In effect, our industry specific RETS system is an outlier, requiring unique domain knowledge and skills that are only known in the real estate industry. Not to get to technical, but when you query a database using RETS, the code that you use is like a new language.

Only developers who know how to code using RETS terminology and methods can accomplish the task. New developers need to learn RETS so that they can translate it into their applications. This serves to thin the ranks of developers, extend the learning time to train developers, and sets an artificial challenge to developing applications for real estate.

# NAR POLICY MANDATES TERMINATION OF RETS



## NAR REQUIRES MLSs TO ADOPT NEW STANDARDS AS ODATA

In 2016, the NAR modified the policy to require MLSs to adopt a new real estate standard based on an open protocol known as OData. Open means that you do not need to pay a license to use it. It's free. It is a universal language for databases and applications used across all industries and taught in high schools, technical schools, and universities around the world. It's the foundation of the technology universe that is adopted across all nations globally. A common method. The list of major technology firms that support the standard

is entirely too long, but includes IBM, Microsoft, SAP, Google, Salesforce, Oracle, the United States Government, Apple, and literally millions more.

We are all indebted to the RESO volunteers and NAR leadership for this bold step of adopting a universal standard. Without it, the real estate industry's systems would have continued to live in obscurity and abstraction.

**"...MANDATED THAT EVERY ASSOCIATION OWNED MLS EITHER ADOPT RESO STANDARDS, OR FACE THE REVOCATION OF THEIR NAR CHARTER."**



## NATIONAL ASSOCIATION OF REALTORS HEDED THE ADVICE

For the industry to invest in change, the National Association of REALTORS® heeded the advice of our industry's standards organization, RESO. The National Association of REALTORS® Board of Directors mandated that every Association owned MLS either adopt RESO standards, or face the revocation of their NAR charter.

Be aware, this policy required that MLSs send data using the RESO Web API standard.

IT DOES NOT REQUIRE MLSs TO ACCEPT DATA FEEDS FROM BROKERS CALLED RESO WEB API UPDATE. THIS STANDARD IS UNDER DEVELOPMENT, HINDERING BROKERS FROM PUBLISHING DATA INTO THE MLS ELECTRONICALLY.

### **Impact of the Web API Adoption Requirement**

This new NAR policy, along with an earlier mandate to provide data using a set of standard names known as the RESO Data Dictionary,

triggered the most significant evolution since the emergence of data feeds in our industry. It requires every MLS system in the nation to convert their RETS systems to a Web API, which, over time, will open the door for every technology vendor using MLS data to migrate. Data will move faster, with a core that is standardized across every MLS. Most of all, brokers and the technology vendors that create their applications, can hire anyone with basic programming skills. Knowledge of RETS is no longer required. Real estate data can power any application like electricity powers any device. Plug and Play.

Last but not least, the RESO Web API has a level of security authorizing accessing data that RETS does not have. It allows for better authentication of database access than the old sharable username and password protocol of RETS. RETS uses MD5 authorization. The RESO Web API uses OpenID connect with OAuth2 - same thing that Google and Facebook and many others use for server to server security tokens. Sorry for the geek speak, but security is vital to optimize the protections afforded when allowing a connection to your data feeds.

## THE COST OF CONVERSION FROM RETS HAS HINDERED ADOPTION

Perhaps the most significant impact to the real estate industry hit the nations MLS service providers like CoreLogic, FBS, Black Knight, Rapattoni, Stratus, Navica, DynaConnections, and others. You see, these vendors are not members of NAR. Their customers are. NAR gave the Association chartered MLSs one year to adopt the new Web API, but did not resolve who was going to pay for it. Only a few dozen MLSs met the deadline because of the cost. The native databases of MLS systems are semi-standard, but most have not adopted the RESO Data Dictionary. Hence, the development requirement is to convert non-standard data fields, numerations, and field level business rules and convert them to the Data Dictionary.

It required each MLS vendor to build a parallel system that runs alongside the RETS system, allowing time for broker technology vendors to migrate from RETS to Web API. This doubled the effort of providing data feeds out of the nation's 690 MLSs who are connecting to about 1200 different technology vendors. It cost each vendor hundreds of thousands to make the switch in each market.

All 1200 technology service providers that use MLS data to offer products to brokers will need

to convert from RETS to Web API. WAV Group recommends that brokers contact every one of their vendors to make sure that they will be converted over to the Web API before the end of the year. We would recommend that brokers also adopt the practice of requiring technology vendors to adopt RESO Standards within 12 months of the release of a new version.

RETS is still operating today in parallel with the Web API, but WAV Group believes that RETS servers will be shut off before the end of 2018 because of the ongoing expense of operating two systems.



# THE BAD NEWS HERE IS THAT RESO HAS NOT PUBLISHED THE UPDATE STANDARD YET.

## **Web API Update to Replace RETS Update**

Every MLS data share in the nation continues to use RETS Update for receiving data. If you want to understand why Upstream is taking so long to integrate with MLSs, read this section carefully.

All of these data shares will need to be migrated from RETS Update to Web API Update.

The bad news here is that RESO has not published the update standard yet. This will probably delay the conversion to Web API Update until year 2019 or 2020. The Web API Update standard is expected to be released in the Spring of 2018. Once released, MLSs will have a year to convert or once again, risk the revocation of their NAR charter.



# EMERGING DATA SOLUTIONS IN REAL ESTATE

As a result of data management evolution in real estate, there are a number of solutions that offer significant efficiencies across the real estate industry.

This paper will provide you with an understanding of the emergence of standards adoption from three different classes of our industry: the brokerage class (Upstream, Dash), the MLS vendor class (Trestle, Spark, The Grid), and the technology vendor class (Bridge, Listhub).

The industry is in a process of reimagining data management. We will provide you with an overview of each company, the business case behind the product, and a product overview that

will allow you to understand the differences.

## BROKERAGE CLASS DATA SOLUTIONS

Brokerages and franchises have been investing in data management since the beginning. Brokerages have been starved for solutions, whereas franchises have invested heavily.

Effectively, brokerage data is stored and replicated in the databases of the applications that they use. Every one of the 64 different classes of technology solutions used in across the 85,000 or so real estate broker-

ages are fed by MLS data and augmented by user input. For the most part, the listing data comes from the MLS, but the firm record is entered in a painstakingly manual method. For example, if a broker wants to add or edit an agent record with a headshot and biography, they need to enter that data repeatedly across every product they use: broker and agent website, CRM, CMA, virtual tour, accounting system, and so on and so forth. For most brokerages surveyed by WAV Group, this process takes about two hours per agent.

Every major franchise has a data solution to support the relation-

# BROKERAGE AND FRANCHISE DATA MANAGEMENT SYSTEMS ARE STILL IN THE CHAOS PHASE.

ship with their brokerage partners. The largest is DASH, the name of the REALOGY database. Berkshire Hathaway Home Services (BHHS), RE/MAX®, Keller Williams and the many others each invest millions of dollars developing their databases, nearly all of which use the old RETS Standard and they are heavily dependent on Listhub. None of these solutions are compatible with each other. Each requires that their vendor applications connect using non-standard processes and complex data mapping.

These are all characterized by WAV Group as closed systems.

Every time a brokerage or franchise wants to add or replace an application, they do a custom integration which takes months or years to complete. Change is very hard, takes a lot of time, and the result is a one-off custom integration. Most leverage a unique code in Listhub to move data, but agent and office information are not included in Listhub. Moreover, the ongoing maintenance of the integration requires highly trained developers who understand the unique nuisances of the integration. A vendor who connects to Realogy, Keller Williams, BHHS, RE/MAX, etc. is inheriting the complexity of maintaining each of these custom connections. You cannot plug and play. Brokerage and franchise data

management systems are still in the chaos phase.

## UPSTREAM (NEW)

Upstream is a company owned by brokerages and franchises. It represents the first time that competitors have agreed to collaborate on a single solution that benefits everyone. It is founded upon the legal understanding that real estate brokerages own their data, and are legally responsible for protecting the data on behalf of the consumer.

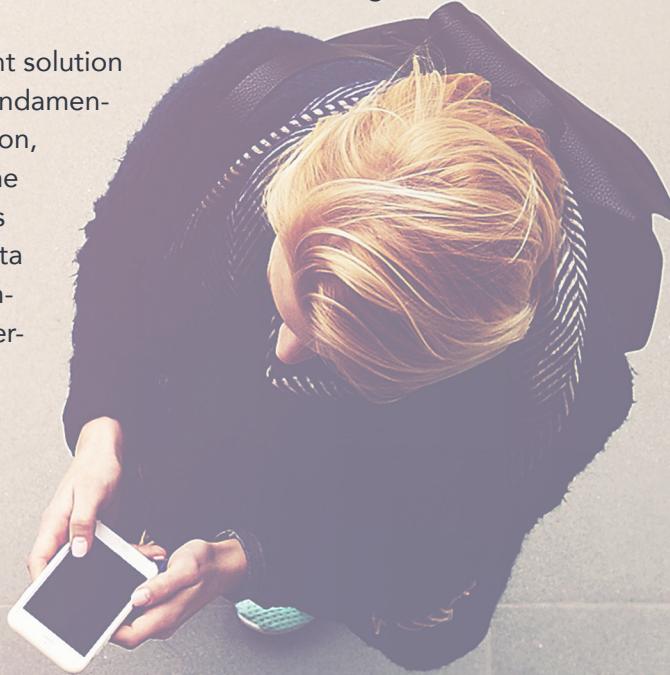
Upstream is an elegant solution that provides three fundamental features: Distribution, Storage, Add/Edit. The data in Upstream uses the same universal data standards that all technology firms use universally OData.

## DISTRIBUTION

Upstream supports RESO standard Web APIs and other Web APIs necessary for the applications that a brokerage or franchise may want to use. Every technology provider that has an API that a brokerage wants to use will be supported by Upstream. Once a vendor connects to Upstream for one broker, that

same connection will support every broker they work with that is using Upstream. Rather than the vendor needing to support many custom database connections, they can simply support one. The broker or franchise authorizes the connection, and the payload of data instantly activates. Most importantly, it is two-way.

The easiest way to understand this is to think about your email, contacts, calendar, and notes. Regardless of what system you are on, i.e. Google's G-Suite or



Microsoft 360, the data can be authorized to work everywhere and on every device that you choose your computer, your phone, your CRM, Facebook, LinkedIn, and so on. Every application is using an open standard Web API that connects these

applications to your database. Add a phone number of a contact on your mobile device, and it appears on your desktop application and everywhere else where you have authorized the connection.

With Upstream, not only are your customer records connected and stored, but also your agent records, listing records, transaction records, office records, staff records, lead records, and so on. Every type of data that a brokerage manages is contemplated for distribution through Upstream.

Upstream has one important limitation. Brokers and franchisees using Upstream for data distribution can only share their own data. This is a business rule. Upstream is not replacing IDX data distribution. It only allows the brokerage to authorize connection to their sovereign data that they own. Its focus is on enabling the brokerage to eliminate the need to create and manage custom integrations with their technology partners, and/or log into many systems to update data. For example, if you want to change an agents' headshot photo in every application then you make the change in Upstream, and every application instantly updates.

## DATABASE

Upstream is developed to support a massive amount of data storage. Today, every franchise and every broker is invested in their own database or the many databases of every one of their vendors. Realogy, Keller Williams, BHHS, RE/MAX, and many others are each investing millions of dollars every year on equipment, developers, and maintenance of databases. The disturbing inefficiency of this is that they are all duplicating the effort and expense to do the same thing. Any one of them could provide the service to all others, but competition and trust are barriers.

The Upstream database is a collaboration that ensures and respects the sovereignty of every broker' and franchise's data in the system. It's like the Amazon Cloud. Amazon does not see or access the data stored there. They simply manage the storage, backup, and access to bits and bytes of the data owners that are guarded by encryption and security.

Upstream also supports digital rights management. The copyrightable data in Upstream includes the writing, photography, and the compilation of a record. This provides brokers with legal foundation for pursuing copyright violations.

## ADD/EDIT

Upstream provides a user interface that allows for add/edit. This part is complex and extensible. The broker determines who can add/edit. Permissions are variable and determined by the broker. If the broker wants to give access to staff, agents, teams, regions, vendors, or whoever, that is supported. The broker can even give access to certain data to some users and not to others. This is called entitlement management. In the same way that the broker decides who can access their data, they also determine who can add or edit their data.

The Add/Edit system in Upstream is dynamic. It will look pretty much the same for every broker, but the fields that are required are dynamic to the downstream needs of the technology providers that access Upstream. The most complex requirement for dynamic add/edit is the MLS application, but technology providers have unique data requirements too.

For the most part, the RESO Data Dictionary and Structured Data Standards like XML have definitions for database fields. I do not want to go too deep here. What is important to understand is that technology partners that are accessing Upstream often have unique fields

of data that they need and different business rules about how the data is formatted (like text or numerical). For example, MLSs do not allow marketing language in the body of a property description, or hyperlinks, etc. Marketing applications like virtual tours or flyers do not have such rules. Upstream allows that data to be entered both ways. There are many, many examples of this.

When a user is adding or editing data in Upstream, for the most part Upstream will be able to take a field of data and transcribe it into the database in the format that technology providers need to support their API. When this is impossible, Upstream provides an application dynamically adds that the unique field variation with the unique business rules and requires the agent to only enter that specific data if needed. The unique data field does not even appear for other users who do not need it. In the pilot markets, about 95% of the MLS fields and field numerations are the same across multiple MLSs. Fortunately, most MLSs structure their databases in similar ways. The same is true of other technology providers like virtual tours and flyers. As such, the user can enter data into Upstream to satisfy 95% of the common needs of the technology providers that use the data, and the user only needs to duplicate or originate

about 5% of the outlying data requirements. By comparison, it is effortless to the state of data input management today.

## STATUS OF THE PROJECT

Upstream is developing along two concurrent and united paths. One path is called Direct Input to connect to MLSs, which will be the most difficult integration to accomplish. Despite the noise of the crowd and efforts to pass fault, there is a simple reason why this will take more time than any other integration. MLSs use RETS Update for ingesting data, and the predominate use case is data sharing that is custom mapped between MLSs.

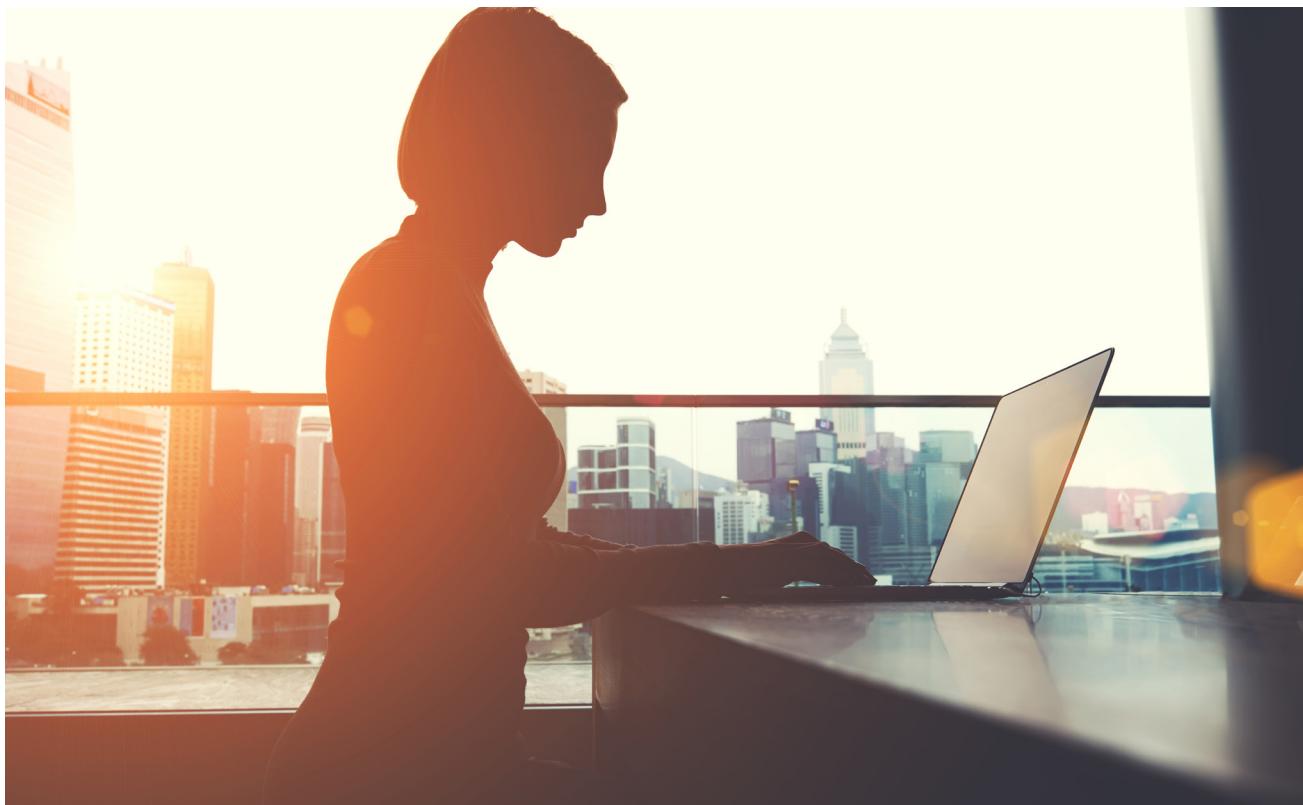
The most sophisticated RETS data share is called CARETS the data share that combines data in Southern California. Now that RETS is no longer the RESO standard, the MLS vendors are awaiting the publication of the new RESO Web API Update standard.

**Neither the MLS Vendors or Upstream are willing to develop custom integration on top of the RETS standard when everyone knows that it is going to be replaced by the RESO Web API Update standard. It would be a wasteful consumption of development time and treasury to develop on RETS.**

However, there are a few MLS markets that can ingest Upstream data using APIs. The first two MLSs to integrate with Upstream are MLS Listings serving the Silicon Valley and broader area of Northern California and the Regional MLS (RMLS covering the greater Portland region of Oregon). Both of these MLSs have in house database management staff and advanced expertise that is rare for MLS providers. The Direct Input capabilities are in quality assurance testing and should go live for a small group of brokers by Q2, 2018 then expand from there.

Most MLSs outsource to a vendor. Others that have this expertise like California Regional, Bright MLS, and a handful of other MLSs are either busy on other projects like consolidation or MLS front end of choice, or simply not interested.

In parallel path with MLS integration, Upstream has launched Broker Direct Feed. On this path, Upstream will pull listing data and roster data in real time from MLSs using the RESO standard Web API. From here, brokers will have all of the management, storage, and distribution features of Upstream along with support for all of their non-MLS data management requirements.



# MLS VENDOR CLASS DATA SOLUTIONS

## The MLS Grid (New)

Today, MLS Data is fractured into nearly 700 data feeds. The MLS hopes to solve that by creating a central data repository for all MLSs that will deliver the IDX data feeds you need.



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The big idea of The MLS Grid is to create a national IDX database. If your firm operates in two or more MLSs, you can obtain your data from a single source, with a single set of rules, and eliminate the need for each of your vendors to aggregate and normalize the data across multiple MLSs.

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As a result of a great deal of research, current wisdom denotes that the need for combining data across multiple MLSs for

brokers is to provide you with a single data feed across multiple MLSs. If you belong to 5, 3, or 40, or all 700 MLSs, that does not matter. You plug your products into The MLS Grid and it delivers the data from all of your MLSs in a single feed.

### **What is The MLS Grid?**

By definition, The MLS Grid is a compilation of data from multiple MLSs that is assembled for the benefit of brokers who participate in those MLSs. It is data aggregation—the process of combining many MLS IDX feeds into a single data feed.

### **Who is The MLS Grid?**

The founding members of the company are comprised of 9 MLSs that have agreed to invest \$50,000 each to develop the base framework for the database. Like Upstream and the Broker Public Portal, The MLS Grid is a collection of like-minded MLSs who are collaborating to create a much-needed solution for brokers.

The company is a For Profit LLC, but operates

governance akin to Broker Public Portal, and Upstream, whereby the intent is not to create revenue to the shareholders.

### **What Data is in The MLS Grid?**

Brokers will be able to access the same information from the Grid that they are able to obtain from their MLS today that includes data sets like IDX for public display on your website or other applications, along with deeper data sets like VOW data (virtual office website).

Effectively, a brokerage like Crye-Leike that covers over 40 MLS areas would be able to obtain a single data feed that would cover all of their Member MLSs that are participating in The MLS Grid rather than pulling them one at a time.

The MLS Grid is likely to provide more value to brokerages that span many MLS regions. A brokerage that is only accessing data from a single MLS may also obtain the data from The MLS Grid, but they would be obtaining the exact data

## THE MLS GRID | THE 9 MLS

<b>MRED —</b>	Midwest Real Estate Data covering the greater Chicago, Illinois area
<b>RealTracks —</b>	covering the greater Nashville, Tennessee area
<b>CarolinaMLS —</b>	covering the greater Charlotte, North Carolina area
<b>NorthstarMLS —</b>	covering the greater Minneapolis, Minnesota area
<b>MARIS —</b>	covering the greater St. Louis, Missouri area
<b>Heartland MLS —</b>	covering the greater Kansas City, Kansas area
<b>MIBOR —</b>	covering the greater Indianapolis, Indiana area
<b>Austin —</b>	covering the greater Austin, Texas area
<b>Northwest MLS</b> —	covering the greater Seattle, Washington area

that they access from their MLS today. There may be two advantages even for those in one MLS market, like the speed in which the data license is approved may be faster. Second, the scope of the data that is included may be broader than what a single MLS may include today and include all required fields and optional broker-friendly data fields as well.

Grid allows all participating MLSs to adapt RESO Standards quickly and uniformly from a single source while distributing the cost.

**Lower Cost:** Today the vendors charge each MLS fees for RESO updates. The MLS Grid participants would share the cost one time among many. They have not declared any costs, so this is yet to be determined.



## What Problems Does The MLS Grid Solve For MLSs?

**MLS Flexibility:** The MLS Grid was conjured to support MLSs who wish to become less vendor dependent on their ability to serve brokers. The developers work for The Grid and are likely to be more responsive than an outside vendor who may have other business priorities. **RESO Compliance:** In most markets today, as Real Estate Data Standards evolve, the MLS must get in line with others and wait for their vendors to modify the data feeds to become compliant. The MLS

## BENEFITS TO THE BROKER

### Improvement in Data Change Management

When standards change each year, the changes can happen at The MLS Grid and immediately publish to all participating MLS markets.

As you may know, the Real Estate Standards Organization (RESO) make changes at least annually. They require that all MLSs incorporate those changes within 12 months. Today, those changes happen erratically across each MLS, and each of your vendors must update the data

mapping. This constant flux of multiple data formats means that a broker's product in one MLS is likely different than the same product in another MLS. The complexity is confounding, and The MLS Grid solves this erratic variation by delivering a single solution with a single cut over for all of your vendors.

### **Single Set of Rules**

Even standard data feeds across a variety of MLSs require your website developer to adhere to a different set of display rules. The National Association of REALTORS has endeavored to standardize the data rules in the MLS Policy, but the policy is broken into required rules and optional rules. NAR does NOT monitor compliance or create any negative recourse for those MLSs that do not abide by even the required MLS rules. Today there is little chance that brokers operating in even just two MLSs are enjoying consistent rules across markets.

Moreover, rules are subject to local interpretation. With The MLS Grid, the permitted data in one market will apply to permitted data use in all of The MLS Grid markets.

### **Consistent Data License Agreement**

Brokers will still need to enter into a data license agreement for each MLS they participate in. The difference here is that the agreement will be the same for each MLS.

### **Single Data Feed**

Today, most brokers and every one of their technology vendors are pulling data from multiple MLSs. Each vendor needs to manage different agreements, and pull the data from multiple sources and aggregate the information into a single database. If a broker has 10 MLSs today, and 10 technology applications, the multiplier effect is that the data integration needs to happen 100 times, and ideally every 5 minutes or less. If the same broker has all 10 MLSs

participating in The MLS Grid, the data integration would go from 100 processes every 5 minutes down to 10 processes.

### **Is The MLS Grid A National MLS?**

No. The MLS Grid is not a national MLS, but proposes to be a national aggregation of MLS data for use by its brokers and authorized vendors. Think National IDX.

### **Will There Be a Fee?**

Your MLSs will pay to participate in operating the company for your benefit. For most MLSs today, the data distribution server is already included in the price they pay their vendor like Corelogic®, FlexMLS™, Paragon, Rapattoni, etc. So yes, this will be an extra cost to your MLS to participate unless they get a reduction in fees from their vendor.

The MLS Grid will not set the IDX data licensing fees that each of your MLSs charges for data access. It will only set the fees that MLSs pay to participate. Some of your MLSs charge your vendors up to \$15,000 per year for data access, others charge nothing. The MLS Grid will not have any power to mitigate the fees your local MLS charges. Fees are a matter of local MLS board decisions.

### **Does The MLS Grid Compete with Upstream?**

No. The MLS Grid is the opposite of Upstream. It is an MLS distribution hub for data to brokers and the vendors that brokers authorize.

### **Can The MLS Grid Be Used For Listing Syndication?**

Sure. Listing Syndication is a function of MLS IDX servers today.

### **Future Possibilities**

If The MLS Grid reaches critical mass, it may be in an ideal position to deliver an app store for real estate technologies use in your brokerage or

by your agents.

The MLS Grid may be a great source of economic market data and market share data across multiple MLSs.

Over time, as more MLSs join The MLS Grid, there is an opportunity for a National IDX data feed from a single source.

The MLS Grid could become two-way, allowing MLSs to data share.

The MLS Grid could incorporate Add/Edit like Upstream and allow you to publish listings into multiple MLSs through a single interface.

### **Could The Grid Become A National MLS?**

Sure. Although that is not the intent today. It would more likely become a national MLS database first. The MLS Grid can feed an MLS system just as easily as it would feed a CMA application or any other product the broker uses. In a way, The MLS Grid is a hedge by MLSs against an unlikely disruptive initiative.

### **Status of the Project**

The MLS Grid was incubated in 2015, and became an incorporated company in late 2016 or early 2017. For the better part of this year, the company has been using the \$50,000 contributions of its founding members to create governance, formulate the business rules, agree on a single data feed application, architect the database, and incorporate and normalize the data. As you have seen and experienced through the evolution of Upstream, this is a heavy process and it takes time. Currently Grid is beta testing with brokerage firms and national IDX vendors. Pending completion of beta testing, it is expected to be operational by the end of Q1, 2018. Each MLS will transition their brokers and

IDX vendors on a timeline that they determine locally for their market.



### **Corelogic® Trestle™ (New)**

Corelogic® is a public company, and the largest data company in real estate, serving the needs of Banking and Real Estate. Corelogic® is also the largest provider of technology to MLSs in America, with more than 50% market share with their MLS product, Matrix™. Although the number of MLSs they serve is a small fraction of the 700 MLS markets - around 125 MLSs. Black Knight®, Paragon™, and FBS Data® FlexMLS™ and Spring, and Rapattoni may have more MLS customers (over 125), but fewer agent subscribers. Navica® has done an excellent job of serving the smallest MLSs. Stratus® and DynaConnections® have a few very large MLSs.

### **Why Trestle™ Was Developed**

Every MLS system vendor was challenged by the burden to convert their RETS servers for distribution data over to the RESO Web API standard. The conversion required a complete rewrite of the entire database, along with new data mapping from the native database in the MLS system to the RESO Data Dictionary standard. On top of the development work, they need to support all of the technology providers who connect to the RETS server at migrating over to the new Web API server. Given the short fuse time of 12 months, the task was daunting. Some MLS vendors did not make the deadline. Others sort of faked it. It is interesting to note that just

having the Web API available is not enough. MLSs must submit an application to RESO for certification. There are still 10% of the MLS in America who are not RESO Certified! The majority of them are very small MLSs, but there are some large ones in there that are conspicuous by their failure to meet the requirement. Here is the naughty list 70 deep -  
<https://www.reso.org/not-certified/>

For Corelogic®, the required conversion from RETS provided them with an opportunity to reimagine the best long-term solution for all of their customers. They also worked with their user group of MLSs, technology providers, and brokers to explore opportunities to convey more of their data assets that could benefit the industry. After significant ideation meetings with their user group, they launched Trestle™.

## WHAT IS Trestle™?

### Trestle™ for MLS

Trestle™ is the next generation data delivery platform for MLS data. It was designed to support any MLS system. Not only can MLSs using Matrix deploy Trestle™, but Rapattoni, FBS, Stratus, Navica, Black Knight and others have the opportunity to leverage the technology should they choose to do so. Corelogic® maintains collaborative relationships with their competitors, a best practice that all MLS vendors share. MLS conversions, data sharing, and integrations with their REALIST® tax products mandate this open collaboration. MLSs can use Trestle™ to stay current with RESO standards, or run it in parallel with their other RESO data servers to expose additional data for their brokers. An important feature of Trestle™ is data licensing management. It is a workflow for processing the IDX and VOW contracts that is completely digital. This is a mind-blowing enhancement to mailing or faxing

contracts. A broker or their technology provider initiates the contract online. The system notifies the MLS that an application is waiting for approval. Remember, MLSs are required to review and approve IDX applications in five business days. Automation is vital. Moreover, this system provides a dashboard for MLSs to issue API Authentication keys to grant data access without contacting Corelogic®. Likewise, they can also turn off data.

### Trestle™ for Brokers

Brokers may access Trestle™ for no charge. In addition to being able to access all of the MLS data across all statuses, Trestle™ has the ability to serve up two types of premium data. Brokers will soon be able to access public record data and Automated Valuation Data (AVM) through this system for an added fee. Since advertising websites like Zillow, Trulia, Realtor.com, and Homes.com all display off market listings and AVMs, this is an important capability that brokers need to pursue to stay competitive.

Brokers who need to access data from multiple MLSs may get a combined data feed for a reasonable charge, eliminating the cost of aggregation, normalization, and maintenance across multiple markets. Think one data feed all MLS markets.

### Trestle™ for Technology Providers

Most brokers use technology providers for the applications they need in their business. There are many technology providers that are providing their services to all Corelogic® MLS markets. With Trestle™, they access all of those markets through a single Web API access or a single RESO compliant consolidated feed. Technology providers can also license additional Corelogic® data assets such as tax and AVM and use them to provide better tools to the brokers they serve.

# MLS VENDOR CLASS

## DATA SOLUTIONS

# Spark

### **Spark® Platform by FBS®, makers of FlexMLS™**

FBS followed a journey that is not dissimilar to Corelogic®'s Trestle™ in terms of RESO Web API Adoption, only many years before Corelogic®. They launched the Spark® API in 2012 in line with their launch of the first data connected App store for real estate, called the Spark® Store. This launch was well ahead of the RESO Web API being a requirement, and before the adoption of the RESO Data Dictionary requirement. The idea is that an agent or broker can build their tech stack from a menu of products that are already wired to their MLS(s). In imagining how the Spark® Store would work, they looked at the MLS data aggregation of multiple IDX feeds from the vendor and broker perspective vs. the traditional MLS vendor perspective of MLS to broker/vendor. Ideologically, it is a game changer. But purchasing a broker or agent tech stack from the Spark® Store has been modest. Agents have not adapted to purchasing SaaS tools online yet, but like many things, that is subject to change.

The data solution FBS offers to their MLS clients includes support for RESO RETS distribution, and RESO Web API distribution, but, importantly, only the RESO Web API solution supports the RESO Data Dictionary. Using FBS's RESO Web API, Brokers or their vendors can use a single source to acquire data from one or many MLS markets rather than pulling them one at a time. This is significant because FlexMLS™ is the system that covers 155 MLS Markets out of the total 690.

Through the RESO Web API, FBS provides all the fields the MLS has mapped to the Data Dictionary plus all the localized fields as well. . This is important to encourage adoption of the Web API today, because some MLSs have not yet mapped all the available fields in the Dictionary and there will always be a few fields that are not yet in the dictionary or are too local to include in the Dictionary. For example, some localities have detailed fields about tax assessments that do not map specifically enough to the RESO standard fields. In other cases, the data fields may map to the Dictionary but not with the same specificity provided locally, so including both the Dictionary and local fields is important.

Having both the Dictionary and local data labels in their data feed also enables MLSs to map more fields without worrying about breaking soft



ware implemented on the local fields. The vendor can choose to accept the local data fields (exact fields and field numerations entered by the agent) or the Data Dictionary fields that are normalized to every MLS nationwide. The philosophy is that many companies who developed legacy applications can still get the data they need, formatted as they originally programmed without needing to convert. Vendors love it because it saves them the treasury of reformatting data as they ingest it into their products.

FBS supports data sharing between MLS systems like other MLS vendors, using RETS, and they're looking forward to migrating those data-shares to the Web API as the standard APIs become available from other vendors. An example would be the data share between Palm Beach (FlexMLSTM) and Miami (Matrix) and soon Ft. Lauderdale (Matrix).

An interesting example of how the RESO Web API can be helpful in data conversions is how Bright MLS used Spark® in expanding their MLS footprint. Bright MLS uses the API to connect Keystone MLS and Coastal MLS for saved searches, customer contact records, and other data that is NOT AVAILABLE IN RETS.

The dashboard for Spark® is primarily developed for MLS administrators and brokers and agents can be invited in to manage syndication choices and opt out choices. The MLS administrator can authorize or revoke either or both the RETS credentials or the Web API credentials.

Spark® also includes advanced license agreement

management that uses click wrappers that allow for the agreements to be completed with a mouse click. Vendors can accept the terms of each one of the 155 markets in a single click because they bootstrap each of the agreements from all markets for the Spark® Store. Pretty impressive. With Spark®, the MLS sets their rules and agreements FBS provides the conduit.



Real Estate Data Solutions

#### Bridge Interactive™, a Zillow Group® company

Bridge Interactive™ was founded in 2006 and acquired by Zillow Group® in 2016. The company's first mission was to deliver a single add/edit solution for listings that would publish into the two overlapping MLS systems in Atlanta, namely Georgia MLS and FMLS. The foundation of its solution leverages the RESO RETS Update protocol, which is widely supported by vendors like Corelogic® and Black Knight. Bridge has pledged

that as the industry moves toward update via API, it will also support the new RESO Web API Update Specification once it is defined.

When Bridge Interactive™ developed its original listing input solution in 2006, it was ahead of the game. Recently, brokers have raised the need for more efficient listing management tools, and a desire for a streamlined, innovative solution. With Zillow Group®'s resources now behind it, Bridge has dramatically expanded its team in Atlanta, and tapped Zillow Group®'s team of User Interface programmers in Irvine, California to give the add/edit product, now called Bridge Listing Input, a complete ground-up rewrite.

In addition to the ability to post to multiple MLS systems, Bridge Listing Input (BLI) can simultaneously post to broker and franchise systems. For example, Bridge can post to Realogy's Dash® back-office system. BLI provides mobile support, allow agents to change price, status or upload photos from their phones. Bridge is also the only listing input solution with unlimited high-resolution photo capabilities both for input and output and those photos are available via the listing output API.

It is important to note that this is currently the only commercial solution in the marketplace for adding and editing MLS listings that is not a component of an MLS system. This pioneering effort demonstrates that MLSs who have business needs for add/edit to multiple MLSs have a solution available.

Add/Edit of listings is not easy. To accomplish the integration, there is a requirement to map to the native data fields in each MLS and support the native data business rules in each MLS. Unlike MLS add/edit systems, Bridge also supports the inclusion of custom broker fields, and high resolution image support.

For example, when adding a listing to Corelogic®'s Matrix system at FMLS, they only have one status field called Active. When adding a listing to Black Knight's Georgia MLS system, the status field options are Active, Back On Market, or New. Bridge publishes to both systems while adhering to the business rules of both databases seamlessly.

Bridge Listing Input leverages the Zillow Group®'s library of parcel listing data to prepopulate listing input fields the same way as other MLS systems. Frequently, the Zillow Group® library has more elements for prepopulating listings than a basic public record. In addition to pre-population, Bridge has introduced some artificial intelligence features to learn agent behaviors and preferences.

### Distribution

Since its founding, Bridge has been a strong supporter of RESO data standards and developed a highly sophisticated data management tool for MLSs called Bridge RETS. Recently, Zillow Group® rolled the RETSLY product group into the Bridge product group and that product is now called Bridge API. The Bridge API is the only vendor with a RESO Platinum Certified API in the market.

Today, nearly 45 MLSs use Bridge Interactive™ products for distributing MLS data feeds, and syndication feeds to data recipients in those MLS Markets. Bridge Interactive™ offers full featured control panels and reporting systems for MLS staff to manage RETS and Web API distribution. MLSs using Bridge maintain complete control to authorize data access whether the recipient prefers using RETS or API. A key feature of Bridge API is that, like Trestle™ and The MLS Grid, technology providers can pull a single feed that contains each of the MLS data sets that they are authorized to access. If a vendor is approved in all 45 MLSs, they can pull data from all 45 MLSs in one API call. Brokers also have access to a view

of the Bridge dashboard for managing their data feeds for the purposes of distribution, a product that was released in December 2017. This product is currently being beta tested by a small handful of brokers, including a large broker from the Midwest.

### **Agreement Management**

MLSs have an enterprise requirement to manage the three-party data license agreements for IDX, VOW, and other data feeds. These agreements usually need to be signed by the broker, the broker's technology vendor, and the MLS. Bridge developed the Bridge Agreement Management system to automate these agreement transactions digitally. Bridge's platform accommodates any license agreement an MLS requires, and can include the agent when they are required to be a party to the agreement.

As you might imagine, large MLSs may have 40,000 agents using 20 products that need to be authorized by 4000 brokers. That is 800,000 agreements sorted into 4000 bins. With Bridge, the agreement management process is fully automated in a well-developed, easy-to-use fashion.

Bridge's dedicated teams of experts in Irvine, Atlanta, and Vancouver have created tools to improve the listing management process from start to finish: listing creation, data license management, and distribution. These tools can be used a la carte, but provide additional flexibility and functionality when used together as a data management ecosystem.



### **ListHub®, by Move®, Inc.**

Of all the emerging data solutions in real estate, the longest standing and most heavily adopted solution is ListHub®. I would expect that most executives are very familiar with ListHub®. WAV Group published a definitive ListHub® whitepaper in 2008 expressing that ListHub® was a must have for every MLS. Not long after the publication, that is exactly what happened. Finding an MLS that does not use ListHub® is like finding a needle in a haystack.

It is important to note that ListHub® is providing a listing syndication service, not an IDX service. They distribute only the listings that have been authorized, and only to the specific destinations ordained by the broker. This is a super important distinction. Data is MLS sourced, but broker controlled.

In 2007-8 and earlier, real estate brokers were struggling to publish their listings to publishers, often dozens. ListHub® was the pioneer of the concept of listing syndication, and they continue to be the leader in listing syndication today with around 600 active MLS partnerships and more than 60,000 brokerage customers.

### **The ListHub® Dashboard**

The ListHub® Dashboard is the control center for managing data distribution by the broker. In most cases, the default setting for listing syndication is that all destinations start out in the Off position. If a broker wants to send data to a portal, they click to turn it on. ListHub® subjects all publishers to stringent standard terms (which supersede the publishers' Terms of Use), creating

a “safe zone” where brokers can make syndication choices while being assured that certain basic protections are in place for the broker (<https://www.ListHub®.com/listing-and-data-protections.html>).

In addition, ListHub® provides the broker with a quick capability of reviewing and comparing each site’s website features/attributes, business practices, and terms of use to understand the value of the destination before making selections. Before ListHub® provided this protection, most destinations expected that data provided by the broker were indefinitely licensed with the capability to use the data or sell the data to others as they wished.

Over time, MLSs, brokers, and ListHub® were able to transform the terms of use of data licensing to ebb the tide back in the favor of the broker.

### Data Payload

ListHub® continues to support the distribution of data by FTP or via RETS. They have not adopted the RESO Web API or Data Dictionary yet, but it is on their roadmap. Every field made available from the MLS is available to publishers from ListHub®

using the old RETS standard. For the most part, the data payload is crafted by the destination. For example, Trulia and other websites publish the required data fields that are required for display on their website. ListHub® configures a custom feed for Trulia and they get the data the way they want. Data is pulled incrementally from each MLS on a regular basis and distributed to all of the destinations 4 times a day. ListHub® does not handle duplicates, the publisher does.

As you may know, Zillow Group® stopped accepting data from MLSs offering ListHub® a few years ago because they wanted to get data direct from the MLS in real time. This decision may have also been shaded by the fact that Zillow Group® and Move® (ListHub®’s parent company) are competitors and were involved in a very public lawsuit. It is additionally possible that Zillow did not want to give ListHub® the statistics on leads generated or listing impressions. Interestingly enough, Zillow Group® continues to accept ListHub® data feeds from Franchises who

are ListHub® customers, but not MLSs. The full agent and firm record (roster information) are not included in ListHub® today. Listing brokerage/agent attribution (company name, list agent name, contact information) is provided to publishers by ListHub®, and is required to display on the listing detail page on the publisher websites in the ListHub® network. That said, for the agent photo and brokerage logo to appear on third party destinations selected by the broker, the broker needs to get that data into those systems another way.

### Agreement Management

A major feature of ListHub® is agreement management. Imagine if each publisher (there are over 100) had to obtain a data license agreement with every broker (around 85,000). These companies would spend more time doing agreements than they would building their product. ListHub® has a single agreement with each publisher.

## **Compliance**

An important service provided by ListHub® is publisher compliance management. They operate a team who reviews the listing display on each publisher site and contacts the publisher if their site isn't complaint with the network rules.

## **Support for Broker Products and Franchises**

ListHub® has always been keen to support the unique needs of brokers and franchises. For example, Franchises are not brokers and thusly they do not have access to pull a broker feed from an MLS. Brokers affiliated with a franchise can authorize ListHub® to send the data to their franchise partner rather than enter a listing into the MLS and the franchise system. They support just about every franchise in America including Realogy, Keller Williams, and many others. The franchiser gives their broker a special code to turn on this data feed in the ListHub® dashboard.

Likewise, brokers often have unique product vendors that are not national. Some examples include a local magazine or a virtual tour company. These publishers can sign up for only their region of focus, or sign up to get data more selectively as an affiliate. For affiliate publishers, the affiliate partner would

provide the broker with a special key to authorize the data from ListHub®. There are about 100 of these special destinations that are regional or selective in nature. Thus, most brokers see about 100 out of the nearly 200 total ListHub® destinations in their dashboard.

## **ListHub® Collects Lead and Impression Data**

As you would expect from any advertising syndication platform, ListHub® collects important data for the real estate broker on the exposure generated by their syndication efforts. ListHub® requires that each destination return statistics on listing views and leads. This is an enormous utility for real estate brokers who would like to see the effectiveness of their online advertising strategy by site, and be able to share that effectiveness with the agent and seller.

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### **About The Author**

Victor Lund is a founding partner of WAV Group, Inc and President and CEO of RE Technology.

### **About WAV Group:**

WAV Group provides consulting services that deliver equally on both strategic planning and technology and process implementation for enterprise brokerage organizations in real estate.

## **About RE Technology**

In 2008, Victor Lund and his partners founded the nation's largest online real estate publication , RE Technology, Inc. The 16 person team publishes comprehensive real estate technology information which is distributed through MLS partners. RE Technology reached the milestone of providing product information to more than 750,000 real estate agents and brokers across America visitor traffic exceeding 1.5 million visits per month.

## **Business Background**

Victor Lund has a foundation of professional experience in Venture Capital Research, Hedge Fund Research, Business Development, and Strategic Development. Lund and his family have owned and operated a variety of companies across multiple industries including boating, manufacturing, consumer products, and technology.

## **Speaking**

Lund is a industry speaker on technology and strategy in real estate, having spoken or moderated on numerous occasions at leading industry events like: NAR, NAR Midyear, The Realty Alliance and Leading Real Estate Companies of the World. Lund routinely is invited to share industry updates to MLSs and the nation's largest 100 brokerages and largest 10 franchises.

## **Specialties:**

Strategic Planning  
Business Development  
Go To Market Plans  
Technology Roadmaps  
Broker Marketing Plans and Evaluations  
Broker Public Relations Plans  
Broker System aggregation  
Broker Research and Case Studies  
Broker Training  
Broker Recruiting



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