



The buy side, the changing nature of buy vs. build, and how fintech has evolved

Neal Pawar, the former CTO of AQR and current COO of Qontigo, chats with Anthony Malakian about some of the major trends that are changing how asset managers interact with the vendor community, and how this shift mirrors the most significant evolutions in capital markets technology over the last decade.

I don't normally like starting a column by establishing a source's bona fides, but I think it's important to highlight Neal Pawar's career before getting into the meat of the article.

Pawar was AQR Capital Management's CTO. He spent more than a decade at DE Shaw & Co., during a time when the fund's assets under management grew from just shy of \$1 billion to \$45 billion. He was chief information officer of UBS Wealth Management. He was group chief information officer of Deutsche Bank. He's held other roles, and today he's COO of Qontigo, a risk, analytics, and index solutions vendor that was born out of the merger of Axioma and Deutsche Börse's Stoxx and Dax units.

His nearly 30 years of varied experience in the industry makes Pawar an expert in the field of financial technology. But more than that, his passion and zeal for the subject comes through every time we've spoken.

I recently caught up with Pawar because I saw he was named a member of Talos' advisory board. I was a bit surprised because crypto, digital assets and DLT were never topics of our conversations. As I think I've made clear in previous columns, I'm not a fan of crypto and DLT/blockchain.

But I do like to hear opinions that are contrary to my own, so I wanted to understand his reasoning for taking on this role (in addition to being COO of Qontigo, and serving as a member of CAIS's board). And through our conversation, I think that I gained a different perspective on the evolution of the buy side and how asset managers and hedge funds view the buy-vs.-build debate today.

But more importantly, I think this column is the closest I've come to explaining how the various tech evolutions we've seen since the financial crisis connect. This will sprawl, but I hope you stay with me.

A whole new world

So first it's important to acknowledge certain trends that we've been hammering on about—a lot. First is the inexorable push to the cloud for banks, asset managers, exchanges and vendors. On top of that, capital markets firms, especially end-users, are becoming increasingly comfortable with the idea of not just taking from the open-source community, but contributing. (And it should be noted that even before Pawar was at AQR, the hedge fund was on the cutting edge of open-source, as it released pandas into the world.)

Additionally, end-users and vendors are increasingly embracing APIs as the preferred way to connect to data sources. So it is that data is easier to acquire, store and analyze, but providing actionable insights into that data—whether for trading, risk, settlement, and/or cyber—is becoming increasingly important.

And it's easier to provide context if systems are interoperable and if AI is used to help in these efforts. (Yes, I'll discuss crypto and DLT, but first, you'll have to suffer through 1,000 or so words.)

Pawar says that just 10 or 15 years ago, large buy-side shops would choose to build—to some extent or another—things like their order management, settlement, and accounting systems. But because of these macro tech shifts we're seeing—in addition to increased regulatory reporting requirements, the rise of passive investing, and the pressure to

build more diverse portfolios—the buy/build discussion is changing.

“You're at the point now where even at the tip of the spear—front-office, portfolio construction—a lot of the components there you can buy off the shelf,” in addition to your middle- and back-office systems, he says. “But these components do not come preassembled; you need to assemble them, and that's where a lot of the alpha and the nuances of what makes one fund or asset manager different from another starts to come in.”

“So if you follow the argument that everybody's moving to cloud over a timeframe at different paces, then ultimately you also have to come to the conclusion that people are going to be rebuilding their own rails in the process.” Neal Pawar, Qontigo

If you talk to non-engineers, you might credit this evolution to those three aforementioned market drivers: reg reporting, passive investing, and asset class diversification. But as any technologist who has experienced the nightmare of replacing a major legacy platform knows, it's the technology that is rapidly changing, and everything else follows as a result.

Over the last 10 years, the rise of cloud has led to the rise of software-as-a-service (SaaS) and managed services, and incumbent tech providers have had to reimagine their established but aging systems. Not long ago, Goldman Sachs tried to send a former employee to the slammer over some open-sourced code; today, GS could be considered one of the leading banks when it comes to open-source development. Additionally, APIs

are becoming increasingly prevalent as the preferred way for data and software providers to deliver their goods. And at the same time, advancements in the fields of machine learning and natural language processing are allowing quants to more efficiently identify trends and trading opportunities.

Recently, the Depository Trust & Clearing Corp. (DTCC) and consultancy Celent put out a report that looked to benchmark just how far along

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buy- and sell-side firms are in their cloud migration journeys. As you might expect, the ranges differ, but the cloud is where everyone wants to be.

Here’s how Pawar sees it: Some trading firms, exchanges and vendors are already fully in the cloud; some are getting there; some are just getting started. As a result, you’re seeing more deals being struck between the likes of Amazon Web Services (with, for example, Goldman Sachs), Microsoft Azure (HSBC), Google Cloud (CME Group), IBM (Bank of America) and I’ll throw Snowflake in there (BlackRock).

“So if you follow the argument that everybody’s moving to cloud over a timeframe at different paces, then ultimately you also have to come to the conclusion that people are going to be rebuilding their own rails in the process,” says Pawar, who perhaps enjoys talking about the rails and pipes of the industry—the infrastructure and backbone of financial services—as much as discussing cutting-edge tech.

Pawar was drawn to the capital markets after graduating from Brown University with a degree in computer science because it was an industry that was developing cutting-edge analytics systems and ways to manipulate data. These are my words, but perhaps finance started to stagnate in the 2000s, especially

in comparison to the FAANGs, which have seemingly taken over most every aspect of everyday life.

But Pawar believes that the world of finance is starting to catch up: cloud architecting; developing high-speed analytics platforms; using machine learning and NLP to create previously unseen insights; embracing open-source tools ... for an engineer coming out of university, it’s an exciting field (and, again, I haven’t gotten to crypto/DLT yet). On

“I think that’s the reason you see a number of experienced technologists moving over to the vendor side. I think we all see that that’s the direction of travel. And there are still some huge opportunities out there for vendors to emerge and be influential in some of the spaces that aren’t quite as commoditized as, say, accounting systems. No one builds accounting systems today, but you still might find firms building optimizers or building portfolio construction things in the quant space themselves,” he says.

“Unless that is your true alpha and the thing that really makes you different from the others, then at some point everyone is asking the question: What parts can I buy off the shelf and integrate, and what parts can I do myself?” he says.

So the key takeaway is that the buy-vs.-build debate is changing because the technology is changing. Regulators will bring forth new requirements, market structure changes will be made, and investment strategies will evolve ... but these things can only be answered for if technology evolves, first.

The crypto end of the equation

Again, though, the reason I reached out to Pawar in the first place was mainly because I saw he was joining Talos as an advisor. And if you’re going to talk about evolution in the capital markets, the topic of crypto (and DLT ... but more on that in a minute) must be addressed.

First, something to know: Anton Katz, cofounder of Talos, reported to Pawar when the two worked at AQR. And Katz met his partnering cofounder, Ethan Feldman, prior to arriving at AQR, when the two worked at Broadway Technology. So Pawar has a direct connection to Katz and Feldman.

But the backgrounds of Katz and Feldman play into what Pawar has been talking about when it comes to pipes and rails. Katz, Talos’ CEO, was head of trading technology at AQR. At Broadway, he held several roles, most recently as director of software. Feldman, Talos’ CTO, spent a decade at Broadway and served as lead software engineer. Broadway, of course, is one of the leading fixed income trading platforms in the industry (which led to the whole ordeal of getting acquired by Ion Group, only

top of that, while quant shops like AQR, Renaissance and Jane Street, or banks like Goldman and JP Morgan will continue to attract top engineering talent, the vendor community around financial services is becoming deeper and more sophisticated, and thus more enticing to graduates with computer science degrees.

Sure, Pawar might be biased, but he was drawn to Qontigo because of the freedom to develop new products and work on interesting projects with a range of companies. Pawar is not alone.

This is just anecdotal, but since the pandemic began, I’ve seen several big-name executives leave end-user firms and go to a vendor: Bill Murphy (Blackstone CTO, now at Cresting Wave); Suvrat Bansal (CDO at UBS Asset Management, now at Clarista); Joe Lodato (Guggenheim Partners chief compliance officer and CISO, now at Capital.com); Anjala Gupta Reddi (chief data governance officer, now at Dow Jones); Nancy Selph (COO and CTO UBS, now at Avellino Lab); and Keith Lubell (CTO at Berkery Noyes, now at Meta). And those last two, you might notice, are examples of industry professionals taking their capital markets skills and applying them to other sectors, which is something of a mini-trend.

Pawar doesn’t view these moves as entirely coincidental.

to have the company splintered off—and that’s too complicated to get into for this column).

This is all to state that Katz and Feldman have hardcore backgrounds when it comes to building institutional-grade trading platforms.

Now, what has hindered crypto’s ascent in the wholesale capital markets? Well, to name three issues, it’s the lack of institutional-grade trading tools, clearing and market data. But major improvements have been made in just the last 12 to 24 months.

Pawar says that what he respects about Talos is the company is trying to take the lessons learned from AQR and Broadway, and apply them to the world of crypto to build the infrastructure that will not just underpin this nascent asset class, but that will allow it to more seamlessly be tied to more traditional asset classes, like equities, foreign exchange, and fixed income.

“One of the things that would always frustrate me 10, 15, 20 years ago, was: Let’s say you were a fund that traded one asset class, so you’re an equities shop and you wanted to start trading fixed income. Oftentimes, to do that you would buy an entirely new vertical of systems and you’d have to put them together for that asset class,” Pawar says.

“What you really want to do is take the set of systems you have and add an additional asset class to them so you don’t have to clone all that functionality. But that requires the other side of that to be mature enough to connect in. Previously, that didn’t really exist in crypto, which is why I think a lot of institutional investors were not the first out of the gates trading here—it was much more prevalent on the retail side,” he says. “I think now that institutions see crypto as an asset class that’s not going away—and it will become more and more part of their end-clients’ asset allocations or investment thesis—they have to have the rails and the pipes.”

Talos, he says, is looking to become the institutional smart order routing system for crypto, powered through APIs that take care of a lot of downstream connectivity to the ever-expanding range of exchanges out there. This way, a trader or portfolio manager can look at it as just



another asset class to connect into. “So now, when you’re plugging that into the trading systems and order management systems that the client might be running, they don’t have to treat it any differently,” he says.

(I’m not here to plug Talos’ offering—this is simply to show how institutional trading tools are being brought to crypto and why Pawar thinks that’s important.)

And, of course, blockchain

As we’ve written about extensively before, blockchain skeptics abound, and so many supposedly innovative startups and game-changing DLT projects have gone belly-up or disappeared into the ether.

Pawar acknowledges this: “So many of us on the banking side and the asset management side have been experimenting with DLT for a long time now—seven to eight years of prototypes and proofs of concepts. When you look at actual production you say, ‘Well, how many of those are actually driving the financial system?’ The answer is still pretty small.”

With that said, he believes that DLT development will be important for the future evolution of the capital markets. First, crypto isn’t going anywhere—it’s a small asset class, but an asset class that’s growing nonetheless. And being that crypto is a digital asset, and the fact that governments around the globe are looking at the expansion of digital assets

into the world of traditional finance, that means that the technology that underpins digital assets, DLT, is here to stay, as well. (We’ll save whether DLT should be used to solve every back- and middle-office need in finance for another day.)

As I understand the situation, for Pawar, it all comes down to standards and standardization.

He says that with DLT, the technology itself is still a bit too new and there are still concerns about throughput. And critically, he says every bank and asset manager wants the payload—the format of the data structure that’s living inside of the distributed ledger—to be as close to what their internal representations are to either own that IP, or to at least make the job of migrating to that system very easy for them. In this way, if it’s an over-the-counter swap that’s being traded on the ledger, a trading firm can have control to make “design choices” as to the terms and conditions of the swap and the structure of the legs of that swap, for example. True distributed ledgers are designed to be rigid.

Pawar likes open source in part because it encourages a set of standards, protocols and agreed-upon terms and definitions for data interchange. One needs to simply look at the Financial Information eXchange, or Fix, for proof as to why a protocol can be a boon for an industry. He says if a firm wants to switch out its accounting or even risk systems, that



journey can take upwards of two years. “But trade execution systems [are able to be migrated in] almost a few minutes in a routing table and it would work, and that’s because of Fix,” he says.

“For me, one of the things that’s missing in other parts of the financial ecosystem is we haven’t quite invented that ‘Fix equivalent’ in those areas. So there’s still a certain amount of stickiness around the choices that you make with your vendor landscape because you’re not at the point where you can say, ‘I’m going to get off of this platform and move to another one or try it out,’ without going through a pretty lengthy, often multi-year project of running [applications/data] in parallel, and mapping securities, trades, identifiers and what have you,” he says.

In the same vein, Pawar says the Fintech Open Source Foundation (Finos), has been “super helpful” at providing a framework—a checklist, if you will—for how firms can incorporate open-source tools into their organizations, understand what the liabilities and licensing needs are, and how to train people.

And as *WatersTechnology* first reported, Finos will host the common domain model for Isda, Isla and Icma. With the CDM, Pawar notes, Isda made “design choices” because of its standing in the derivatives space, so the industry is OK with that. DLT, again, is rigid and doesn’t quite allow for design choices.

“That’s one of the reasons [DLT] hasn’t taken off yet, but as that starts to take off, then you start recognizing that now, when I look at companies

like Talos, they’re used today for trading cryptocurrency because that is the primary asset class that lives on these distributed ledger-type rails,” Pawar says. “But as you start getting representation of all other asset classes in more of a digital asset representation, then there are going to be opportunities. Traditional trading systems might not interact with them in the same way, and you may want to use the rails that companies like Talos have built, because they’re more naturally geared for working with digital assets.”

So as digital assets mature and governments and regulators better understand how these can be incorporated into traditional finance, the nature of DLT can provide some semblance of standards and protocols that don’t currently exist today in other, say, OTC markets. From there, the vendors in the space can provide the infrastructure (rails/pipes) that will allow for firms to make those design choices, but within the structure provided by standards and protocols.

Obviously, this is not going to happen tomorrow, but it’s why for every DLT skeptic, there are three or four believers.

In conclusion

At the top, I told you this would be a sprawling trip, but let’s see if I can wrap this up nice and clean:

The cloud piece: Cloud led to firms being able to pull in more data (the alt data explosion), which led to more experimentation with more analytics

platforms (context is king), which led to more experimentation with AI (how to find correlations in a sea of information), which led to more experimentation with open-source and APIs (standardizing tools to better move/analyze data), which led to the rise of SaaS and managed services (thus the ease of coming to market), which led to firms wanting vendor systems to be more interoperable (well ... the interoperability push), and the need to simplify the engineering (low-code development, which I’m only mentioning now, but is becoming a very popular topic).

You can argue about the timeline, but those are the trends most aligned with development in the wholesale/institutional capital markets.

The crypto piece: Somewhat in parallel with the cloud piece, crypto was born (digital assets). While it’s been a chaotic space, efforts are being made to provide more institutional-grade stability (meaning tools and data). And underpinning digital assets are distributed ledgers (a technological form of standardization).

Now the cloud piece is something I’ve been forming in my head through years of interviews, and Pawar tried to help me to understand how these varied components fit together for a CTO/CIO at a bank or asset manager. The crypto piece is Pawar trying to help me understand why crypto/DLT will prove a major disrupter in the future—and I likely didn’t do a good job of fully articulating his thoughts.

So with all that said, I’ll leave you with this: I will have been covering capital markets technology for 13 years this October. When it comes to the most significant tech changes I’ve written about in that span, well ... this column encapsulates the industry as I’ve seen it evolve. Of course, there were regulatory pressures driving change (just look at the ever-growing field of regtech). There have been massive market structure shifts that have occurred and that are still underway. And the growth of passive investing has been massively disruptive.

But looking at the actual technologies being used to address these industry shifts—the above is the state of the union as I see it ... assuming I understood Pawar correctly. **wt**