Blockchain for Business

ODU ASSOCIATE PROFESSOR AND CYBERSECURITY
EXPERT DR. SACHIN SHETTY EXPLAINS THE TERMINOLOGY
BUSINESS LEADERS MIGHT BE HEARING TODAY—AND
WHY THEY'LL WANT TO LEARN MORE

By Kristen De Deyn Kirk

Old Dominion University Associate Professor Dr. Sachin Shetty apologizes for noise in the background. He's talking on his cell phone to a reporter while on a break at "HIMSS19," the Healthcare Information and Management Systems Society annual conference held Feb. 11 to 15, 2019 in Orlando, Fla. About 45,000 people are in attendance, learning from 300 presenters and 1,300 vendors how to best manage health information. Healthcare providers, government representatives and product developers are exchanging ideas on the future of healthcare technology, and Dr. Shetty is one of the thought leaders pointing the way.

His list of current research and past work fills a 17-page resume. At the foundation are a Bachelor of Science degree in computer engineering from Mumbai University, a Master of Computer Science from University of Toledo and a Doctor of Modeling and Simulation from ODU. Shetty was the founding director of the Tennessee State University Interdisciplinary Graduate Engineering Institute's Cyber Security Laboratory. He has published more than 140 articles for journals, conferences and books.

With almost three years of service at ODU, Shetty has contributed significantly to several university entities and Coastal Virginia organizations. His associate professor teaching and researching responsibilities include work for ODU's Virginia Modeling, Analysis and Simulation Center; ODU's Center for Cybersecurity Education and Research; and the modeling, simulation and visualization engineering department. Recent and ongoing research projects sound impressive—albeit a bit confusing to the layperson: "Cyber Risk Scoring and Mitigation," with the Commonwealth Research Commercialization Fund, continuing until June 2019; "Data Provenance Assurance in Cloud Using Blockchain," with the Air Force Research Lab and University of Central Florida and University of Texas at El Paso collaborators until September 2019; and "Networked Device Identity Management using Blockchain," with Sentara Healthcare until December 2021.

Work with Sentara, announced in the spring of 2018, led Shetty to the HIMSS conference in February—and the launch of a new product. Before the big reveal, though, he kindly took a step back and explained the terminology business leaders might be hearing today—such as "blockchain"—and shared why they'll want to learn more:

Dr. Shetty and his team at the HIMSS19 conference

BLOXURE

BLOCKCHAIN NETWORK

HEALTHCARE NETWORK

MEDICAL IoT DEVICES

CoVa BIZ: How would you describe blockchain to the average person?

Dr. Shetty: Blockchain is a distributed ledger (a shared database) of information that once stored cannot be modified. From a cybersecurity perspective, there are several types of protections that you want on your information. One of the protections is that if I store something, it can't be modified. Say a patient goes to a doctor, and the doctor is transcribing notes about the patient's history, and if that information was logged on a blockchain—a distributed ledger—the next day, if the doctor wants to go back in to change something for whatever reason, he won't be able to. He'll have to start a new record.

Blockchain has the ability to give you complete transparency. Current systems do not; they *do* allow you to modify without anybody knowing. You lose the transparency and the ability to track who makes changes. With blockchain, you can only make additions, not changes. It's obvious that something, a correction, has been added. It is a *trusted* ledger.

CoVa BIZ: Why is a trusted ledger so important?

Shetty: People have lost trust in our information systems, because they hear about cyber attacks in the news. They've lost trust in our ability to protect everything. Blockchain doesn't address all the trust issues, but it does give you security that if some information is put in, it cannot be changed.

CoVa BIZ: What kind of uses does blockchain have besides in healthcare systems?

Shetty: I've been working with several industries. My interest in blockchain start-ed with the Department of Defense Air Force Research Lab. They have been using Cloud platforms for storing their data, and they were interested in having a complete history of information that is put on their Cloud. They want to know who created the file, who added to it and who modified it. They want every operation, the entire history. We've created a couple of platforms for them.

We've also worked with the Department of Homeland Security. They want to provide a way for organizations to anonymously share information on their responses to cyber attacks. Sharing helpful information anonymously allows others to learn without anyone having to share their identification. For the Department of Energy, we helped them keep the integrity of the information they received from sensors in oil fields and ensure the data wasn't modified. Again, it goes to trust.

CoVa BIZ: How do you see an everyday, smaller business using blockchain?

Shetty: If they're currently using some sort of database system, or a Cloud solution, we could replace the database with blockchain or add blockchain to a Cloud solution. In smaller organizations, you don't find the staff to manage data ID and security. They're looking for a trusted framework to track access to databases and changes even more.
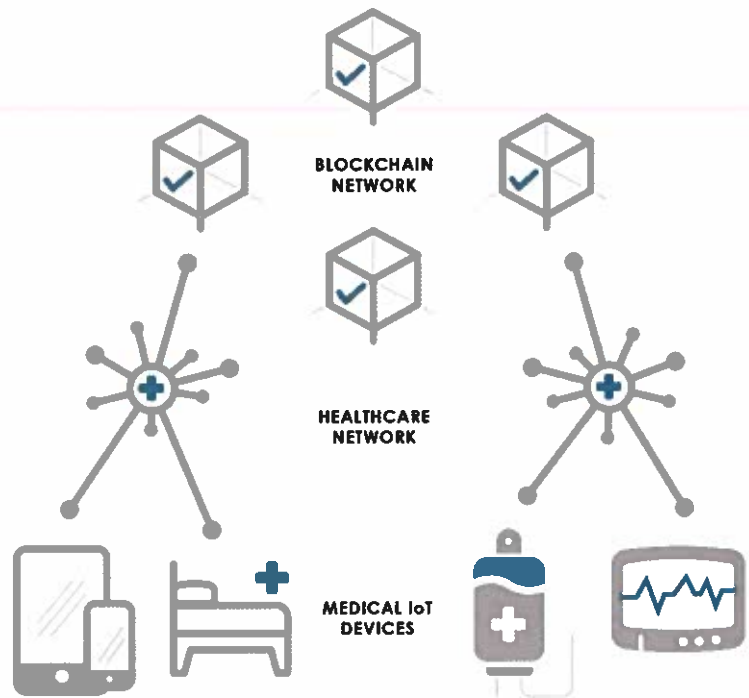
CoVa BIZ: Is there a product that you currently offer that can do this?

Shetty: Yes, we have a product, and we're showing it now at the HIMSS conference. It's fully developed. The website is Bloxure.com. We introduced it the week of Feb. 4 for healthcare. We'll look at other industries, too.

CoVa BIZ: What do you think the average businessperson should be doing right now in regard to blockchain?

Shetty: They can stay informed on what is happening. The banking sector has had blockchain for some time—about a decade now—for cryptocurrency applications, looking at money laundering schemes. That is a different type of use for blockchain. I believe blockchain will be incorporated in the Cloud operating space very soon. If a business is storing information on the Cloud, they should inquire about if it has blockchain capability. We're very early in the blockchain process, and I know the big Cloud companies are working on it. IBM, Microsoft, Amazon are at this convention too, and are testing blockchain with Cloud. Maybe in a year or so it will be mainstream, and everyone will be using blockchain for what I'm talking about—to increase trust with tracking data being logged. **CoVaBIZ**