Off the hook! Who gets phished and why

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Communication researchers at four major universities have found that if you receive a lot of email, habitually respond to a good portion of it, maintain a lot of online relationships and conduct a large number of transactions online, you are more susceptible to email phishing expeditions than those who limit their online activity.

The study, "Why Do People Get Phished?" forthcoming in the journal *Decision Support Systems and Electronic Commerce*, uses an integrated information processing model to test individual differences in vulnerability to phishing.

The study is particularly pertinent, given the rash of phishing expeditions that have become public of late, the most recent involving the online marketing firm Epsilon, whose database was breached last week by hackers, potentially affecting millions of banking and retail customers.

The authors are Arun "Vish" Vishwanath, PhD, and H. Raghav Rao, PhD, University at Buffalo; Tejaswini Herath, PhD, Brock University (Ont., CA); Rui Chen, PhD, Ball State University, and Jingguo Wang, PhD., University of Texas, Arlington. Herath, Chen and Wang each hold a PhD in management science and systems from UB.

Email "phishing" is a process that employs such techniques as using the names of credible businesses (American Express, eBay), government institutions (Internal Revenue Service, Department of Motor Vehicles), or current events (political donations, Beijing Olympic tickets, aiding Katrina victims) in conjunction with statements invoking fear, threat,

excitement, or urgency, to persuade people to respond with personal and sensitive information like usernames, passwords and credit card details.

Phishing exploits what are generally accepted to be the poor current web security technologies, but Vishwanath says, "By way of prevention, we found that spam blockers are imperative to reduce the number of unnecessary emails individuals receive that could potentially clutter their information processing and judgment."

"At the other end," he says, "individuals need to be extra careful when utilizing a single email account to respond to all their emails. An effective strategy is to use different email accounts for different purposes. If one email address is used solely for banking and another is used solely for personal communication with family and friends, it will increase your attention to the details of the email and reduce the likelihood of chance-deception because of clutter."

Vishwanath also advocates setting aside time to focus and respond to personal emails separately from work-related emails. For instance, setting aside a time each day for responding to personal banking emails gives you time to process them more clearly and consider their legitimacy before responding.

The integrated information processing model of phishing susceptibility presented in this study is grounded in prior research in information processing and interpersonal deception.

"We refined and validated our model using a sample of intended victims of an actual phishing attack," Vishwanath says. Overall, the model explains close to fifty percent of the variance in individual phishing susceptibility.

"Our results indicate that people process most phishing emails

peripherally and make decisions based on simple cues embedded in the email. Interestingly, urgency cues, i.e., threats and warnings, in the email stimulated increased information processing, thereby short circuiting the resources available for attending to other cues that could potentially help detect the deception."

"In addition, our findings suggest that habitual patterns of media use combined with high levels of email load have a strong and significant influence on individuals' likelihood to be phished."

The study also showed that a person's competency with computing did not protect them from phishing scams, but their awareness about phishing in conjunction with healthy email habits, helped them avoid online deception.

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Herath, who holds a PhD from UB, is an assistant professor in the Faculty of Business at Brock University. Chen, who holds a bachelor's and master's degree in computer science and a PhD in management science and systems from UB, is an assistant professor of information systems at Ball State. Wang, who holds a master's degree in industrial engineering and a PhD in management science and systems from UB, is

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