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Our own secure private message dead-drop

Burn After Reading: An Easy Way to Send Secure Messages

By Mark Costlow, President

Have you ever wanted to send someone a piece of sensitive information quickly, easily, and securely? Now you can, for free, at SWCP's new service **Burn After Reading** (**https://burn.swcp.com/**)

Often the simplest approach is to call the other person on the phone and tell them. Other than the spooks at the NSA, that is probably a pretty private connection. But if the information is at all intricate, like a password or bank account number, voice communication is ripe for miscommunication and misunderstanding.

Secure encrypted email is a possibility, but so far (after more than 30 years of it being available) it is still too complicated for most of us to master.

And those who CAN figure it out are usually too busy to be bothered trudging through the steps to use it every time.

FAX is another trusty old technology that can work. Unless you are sending your message to a friend or family member who doesn't have access to a FAX machine. Or what if the receivers FAX is in a shared office space? You don't want the recipient's coworkers to read your private message as it slowly churns out of the machine.

These problems are the inspiration behind **Burn After Reading**. It gives you a secure person-to-person communication and it's extremely easy to use – there is no software to set up or install.

Here's how:

1. Visit **https://burn.swcp.com/** in your web browser.
2. Type or copy/paste your message into the box.
3. Pressing **`More options`** will allow the program to send the message for you, and can create a password just for that message. Plus, you can set a time limit before the unopened message expires.
4. Copy the unique web link it gives you into an email to your friend, or have the website send it for you.
5. Your friend opens the email, uses the link to retrieve your message. And then it's gone.

A few things to remember:

- Your secret message is *only* held on the server until the unique web link is accessed. As soon as it is accessed, the server deletes it from memory.
- The message appears on your friend's screen as soon as they enter the link. If they want to save the information, they must copy/paste it from that screen. They *cannot* come back to it later.
- *Anyone* may use this. You and your friend do not have to be SWCP customers.
- SWCP logs some information for troubleshooting purposes (like time and IP address when a message is picked up). However we do *not* save the messages themselves, and they are truly "burned after reading" by deleting them from the server.
- You might note that if someone intercepts your email containing the link, they could steal the message. How is this better than just emailing the secret in the first place? It is different in two important ways:

1. The link is only good for a *single* use. If the interceptor finds the message days, weeks, or months later (say, in a legal "discovery" process), the link will not reveal the original secret.
2. If a bad guy does intercept the link, your friend will KNOW it happened because when they try to access it, they will be told it does not exist.

Enjoy!

The Robots Are Learning

The thinking mechanical servants that are already affecting our lives are, and will be, rather different from the robots of mythology and science fiction. But even the Greeks in their tales of Hephaestus got a few things right that most later sci-fi forgot.

The myths describe "*sets* of mechanical women" and "*sets* of tables" with autonomous but coordinated action, which is indeed how the future robot-populated world will function. Independent intelligent robot butlers will be few; instead, there will be swarms of less-bright robots, all working together in unison, and much of it will be done over the Internet, depending heavily on **cloud computing**.

The reason is simple: even with the ever-increasing power of computing processors as predicted by **Moore's Law**, it takes a *lot* of brainpower to understand and act in the real world in real time. In fact, the **human brain contains about as many nerve cells as there are stars in the Milky Way**.

German and Japanese researchers recently used supercomputers to **simulate** brain functions. Using one **petabyte** (that's *1,000,000,000,000,000 bytes*) and nearly 83,000 processors modeling a "mere" *1.73 billion* nerve cells, they were able to recreate a single second of brain activity in 40 minutes. Clearly, there's a long way to go (unless someone invents Asimov's **positronic robot brain** soon) before you'll be able to exchange jokes with your robot valet.

Dealing with an uncertain world

Digital machines are known for their accuracy. Based on **binary numbers**, everything to them is black or white, on or off, 1 or 0. As long as they are restricted to mathematical number-crunching, they can do amazing, complicated calculations and actions with no hesitation or guessing. But reality is a very messy and ridiculously jumbled place – very few things in our physical universe are as neat or well-ordered.

The first attempts to create **artificial intelligence** sought to remove all uncertainty from the equation. They sought to define every variable, giving the robots rules that covered every possibility in advance. The scientists soon discovered that this could be done only in highly-constrained artificial conditions: there was no way they could anticipate every condition a machine might face "out there".

The so-called "**expert systems**" developed in the 1980s were based on collections of technical information gleaned from human sages. The idea was to present the machines with enough pre-processed data that their logical tools could sort through and find the solutions to any problem. But it turned out that developing extensive knowledge-bases was almost as hard as traditional programming, and not something that could be easily churned out by a non-technical person, no matter how brilliant.

Another approach was needed. It became obvious that to function in our universe, machines would have to be able to adapt, which meant they had to **learn**. In other words, the machines had to be able to *teach themselves without human intervention*.

This necessarily meant mathematical ways had to be devised to deal with uncertainty. And the key to that is **probability**. A simple equation called **Bayes' Rule** allows them to compare conditional likelihoods.

The equation permits robots to evaluate the data their sensors provide, determine what is important, where obstacles might be, and what can be safely ignored. Like human beings, they must estimate moment by moment what the situation is before they can even begin to plot a course of action.

A self-driving car, for instance, has to be able to tell where the road is, where pedestrians are and where they're going, and what other vehicles on the road are doing also. Even with GPS and cameras, it's not easy – GPS is accurate to only within a few yards, and cameras pick up anything in their field of view.

So the computers must **estimate**, using prior guesses that turned out correct and feeding the results back into the data for the next round. And like humans, they combine various types of sensory input to help confirm or modify the previous results. A technique called **Monte Carlo Localization** allows a robot to use a series of observations to map its position. It's already being used in smartphones, in things like apps that can tell your location from photos.

To drive, the car also has to be able to tell a pedestrian from a stop sign. So it must learn a set of identifying features and be able to compare sets with other sets. Once again machine learning will enable it to recognize objects by extracting the common distinguishing features and react appropriately.

Deciding proper courses of action relies on **planning**, based on the tasks given the robot, and also **reactive actions** like human reflexes, to deal with sudden changes. No wonder it takes such huge amounts of computing power. But even with far greater onboard capabilities, robots will likely closely network with each other for speed, safety, and efficiency.

In the next article, we'll look at where all this is leading, and what it might mean for our future.

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