



Preserving *the past,* Insuring *the future...*

Electromagnetic Pulse & the Threat to Digital Archiving & Information Storage

Imagine the scenario: you're working on a document for a client, diligently saving your file, making sure everything is perfect. Suddenly your computer crashes – hard drive failure. All your work is lost. Now imagine the same circumstance crashing every computer in your office, your town, the United States. With the ever-changing landscape of digital formatting, and the ongoing debate about the volatility of digital storage devices, file formats, etc. one topic not often discussed is the danger of a mass failure of computers, servers, and hard drives due to Electromagnetic Pulse.

WHAT IS EMP?

Electromagnetic Pulse or EMP is a fast-moving, invisible burst of electromagnetic energy which, according to Major Colin R. Miller (USAF) is his report *Electromagnetic Pulse Threats in 2010* can “damage electrical and electronic circuits by inducing voltages and currents that they are not designed to withstand” (pg 388).

The size, strength, and form of an EMP bomb (as it is commonly known) can vary greatly based on the complexity, cost, and potential damage an EMP can cause to electronic systems. The advantage EMP bombs have, according to Major Miller are (pg. 388):

1. EMP weapons do not rely on in-depth knowledge of the systems they strike, attacking all electronic systems without prejudice.
2. EMP are effective in all weather.
3. EMP are area weapons, with scalable footprints. One weapon can kill electronic systems in an area the size of a tennis court or throughout the entire United States.
4. EMP produce persistent and lasting effects through destruction of circuits.
5. To counter EMP, entire systems must be hardened from end-to-end
6. EMP weapons don't hurt people directly.

WHAT ARE THE EFFECTS OF EMP?

So what does this mean to our electronic systems, especially information stored solely in a digital format and the devices we use that depend on electronic systems for day-to-day living? Consider the following diagram, which shows in inter-connectivity of systems in the United States and the cascade effect an EMP can have on those systems. Starting from the bottom, with Government Services, as an EMP begins to affect the electronic systems one after another, computer systems, traffic lights, communication, network and internet servers begin to lose functionality. In a worst-case scenario, this will create a mass shutdown of the country.

On a smaller scale, were EMP strikes occur, digital files housed on large servers and across vast networks would be lost.

PROTECTION FROM EMP?

Of course, there are ways of safeguarding your digital information, servers, and other electronic systems and it's as simple as enclosing everything in a metal 'cage' which will block the effects of EMP. Many of the basic components found in electrical devices are required by law to be encased in metal.

Unfortunately, no one can really know the devastating effects an EMP attack may have on electronic systems, and the likelihood of standard regulation protections on devices and even metal casings may not protect every system. That's why it's important for companies and government agencies to constantly seek new methods of data storage that are technology independent, with no electronic part, and thus unaffected by EMP. NanoArk's Waferfiche™ technology is one such example of technology-free archiving that not only preserves information on an easy to store medium, but is safe from EMP damage.

For more information on EMP visit http://en.wikipedia.org/wiki/Electromagnetic_pulse.

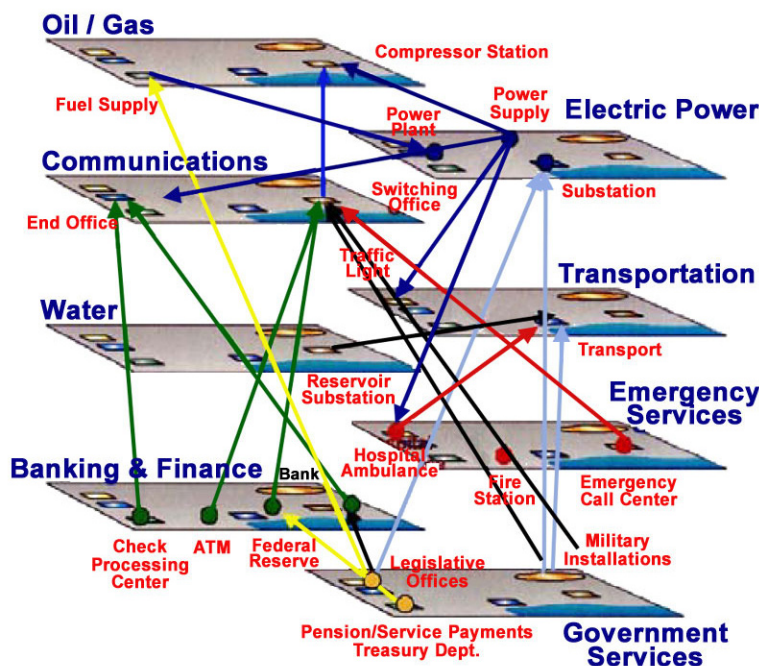


Diagram Showing the Potential Cascade Effect of an EMP attack on the United States. Src: http://standeyo.com/News_Files/UN_Images/EMP.cascade.effects.jpg

Tara Prakashana & the Philanthropic Side of NanoArk Corporation

Since the inception of NanoArk Corporation it has been a fundamental goal of our founders and board members to preserve knowledge for future generations. Utilizing Waferfiche™ technology, NanoArk works to archive rare manuscripts which help sustain the knowledge for generations to come. Started back in 1996, Tara Prakashana, a not-for-profit organization, started by Dr. P.R. Mukund of NanoArk, has been committed to the preservation, education and publication of Vedic philosophy. Tara Prakashana's fundamental goals and interests include:

- Preservation and maintenance of rare or unpublished philosophical texts in Tulu, Sanskrit or other languages.
- Preservation for long term includes high-resolution imaging, processing, restoring, enhancing, & storing in digital formats & on silicon wafers.
- Printing and publishing such works for the benefit of scholars in the field and general public.
- Undertaking or arranging for the translation of important philosophical works into several different languages, making them accessible for all.
- Publish books, periodicals, etc. and make them available for dissemination of useful knowledge.

Based in Bangalore, India, Tara Prakashana has so far worked on the following projects:

- *Vaishnava Literature* - images of ancient manuscripts captured, digitized, processed and preserved in both hard-copy and soft-copy formats.
- *Library in Balgaru Matha, India* - a library the repository of all (possible) ancient manuscripts of India, dating back thousands of years.
- *Sarvamoola Granthas* - name given for over 36 works of Shri Madhvacharya, 700 year old palm-leaf manuscripts currently available as a waferfiche™.

For more information on, or to help support, NanoArk's Philanthropic efforts please visit <http://nanoarkcorp.com/philanthropy>.



Sarvamoola Granthas Project-Trip to India in Jun'06
Src: http://taraprakashana.org/Gallery/album02/100_2548

A MESSAGE FROM OUR CEO

by Dr. P.R. Mukund

phi-lan-thro-py

- 1: goodwill to fellowmen
- 2: an organization distributing or supported by philanthropic funds

That is the dictionary version of the word philanthropy. At, NanoArk Corporation, we map that to our technology on a daily basis. When we get your business, you can be assured that a portion of what we get from you goes towards a bigger and nobler cause.

We believe that the keepers of knowledge in the form of ancient manuscripts seldom have the resources to preserve them well. So, we work with not-for-profit entities to help them preserve their wealth of knowledge, either free of cost or at extremely discounted rates. We also help in disseminating this to interested parties. First example is The Bodleian Library at Oxford University that asked us to archive a 500 year old manuscript. Secondly, we work closely with Tara Prakashana, a not-for-profit trust started by the undersigned in India, preserving ancient palm leaf manuscripts containing philosophical works.

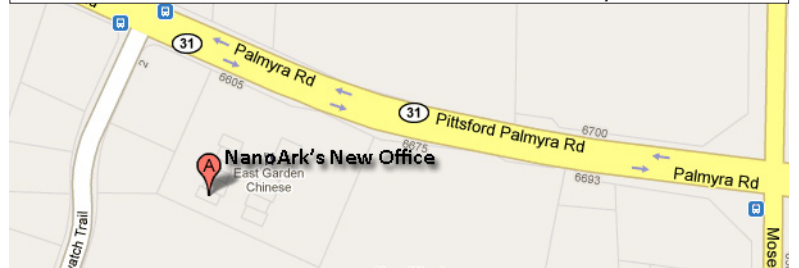
We pledge to grow our philanthropy, as our business grows. For us, it is the way we do business, always looking out for the greater good.

NanoArk Open House

Friday, June 4th, 2-6p.m.

6605 Pittsford Palmyra Road, Suite E5
Blackwatch Office Park
Fairport, NY 14450

Please RSVP to sales@nanoarkcorp.com



Upcoming Conferences: April 2010

May 16-21, Curation Practices for the Digital Object Lifecycle, *Chapel Hill, NC*, UNC School of Information & Library Science, <http://ils.unc.edu/digccurr/institute.html>

May 18-20, Gilbane Conference, *San Francisco, CA*, Gilbane Group <http://gilbanesf.com/>

May 24-25, SIIA NetGain Conference, *San Francisco, CA*, Software & Information Industry Association, <http://sii.net/netgain/2010/>

May 26-27, Tectonics of Digital Curation, *Cambridge, MA*, Northeast Document Conservation Center, <http://nedcc.org/education/conferences/todc2010/todcdesc.php>

May 26, ARMA Northern New Jersey Chapter, *Woodbridge NY*, <http://armannj.org>

June 13-15, NYALGRO, 2010 NYALGRO School, *Rochester, NY*, <http://nyalgro.org/>