The worldwide exponential growth of data is continuing with no end in sight, and is projected to increase from 2.8ZB (a Zetabyte is a billion terabytes) created & replicated in 2012 to 44ZB by 2020. Doubling every two years\(^1\).

Long-Term Archive has very different requirements than traditional ‘backup’, and current storage technologies simply fail to meet those demands.

### Performance Considerations

- **Never Changing - Permanent & Tamper Proof**
  - Cannot be erased or altered.
- **Very High Media Longevity & Stable Data Authenticity**
  - 10–100+ Years without No Media Degradation
- **Data Recovery NOT Tied to Specific Hardware**
  - No Format / Media Obsolescence
- **Immune to EMP Attack, Fire, Flood, Bit Rot, Fingerprint, Corrosion, and other environmental considerations**
- **Medium to Very High Latency**
- **History Proves Data Should Be Represented Visually**

### Financial Considerations

- **Low Total Cost of Ownership ($/GB/Year)**
  - Environment + Volume + Labor + Media Cost
- **No Forced Migration**
- **No Forced Media Replacement**
- **No Need for Regular Data Confirmation**
- **Minimal Hardware Replacement**
- **No Strict Environmental Demands**
  - (15–150°F / −9° to 66° C and 0–100% humidity)

\(^1\)IDC Digital Universe Study, December 2014
Your Data Sealed in Steel

• Steel as a medium
  – Stainless steel has a proven track record
    • Chrysler Building
    • Gateway Arch
    • Niagara Hudson Building
  – We start with a .01 mm thick, 19 mm wide by 300 meters long, band of 316 type stainless steel
Stainless Steel Band Loaded in Magazine

- Two types of archive magazines:
  - ABS plastic
  - Stainless Steel with hermetic seals
  - Double Sided Media

- Optimized for library automation
Magazine Based Reader/Writer Transport

• Automated or manual insertion into transport
  – ‘Picker’ friendly tabs and coding
• Transport uses generic 1000 base–T & fiber interface
• Industry standard transport size
• Femtosecond laser technology
• Dual sided media
• Analog capable
And now for something completely different...
Stainless Steel Ribbed Disc Media

- New target market
- Same laser technology
- Double sided
- Optically readable
- Analog capable
- Same robust environment stability
Stainless Steel Disc Media Drive

- Active damper floating transport
- Non-formatted media (low cost)
- Designed for lower volume market
- Writes both sides at once
- Robotic friendly transport interface
Proving the Concept

Single Shot per location,
Laser Energy- 1.6 mJ/pulse,
Center Wavelength – 775 nm,
Pulse Duration – 150fs,
Spot size about 100 um.
Key Advantages of Cuneiform

- Migrations can be eliminated (or moved out 10–15x longer)
- No forced migrations
- Superior Permanence
- Double sided media
- Simple concept – Visual information with no erasability
- Commodity materials (cost effective)
- System Components Are Proven
- Backward Compatibility Guaranteed
- Generation 1 can be read on hardware generation N
- Environmentally superior media
- Immune to: Floods, Fires & EMP
- Stainless Steel – Hermetically Sealed Magazine
Our Request

• We need YOUR feedback
• Go to...

http://CuneiformTech.com/survey