

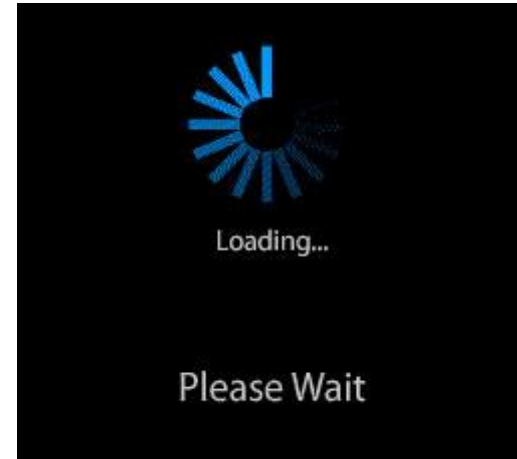
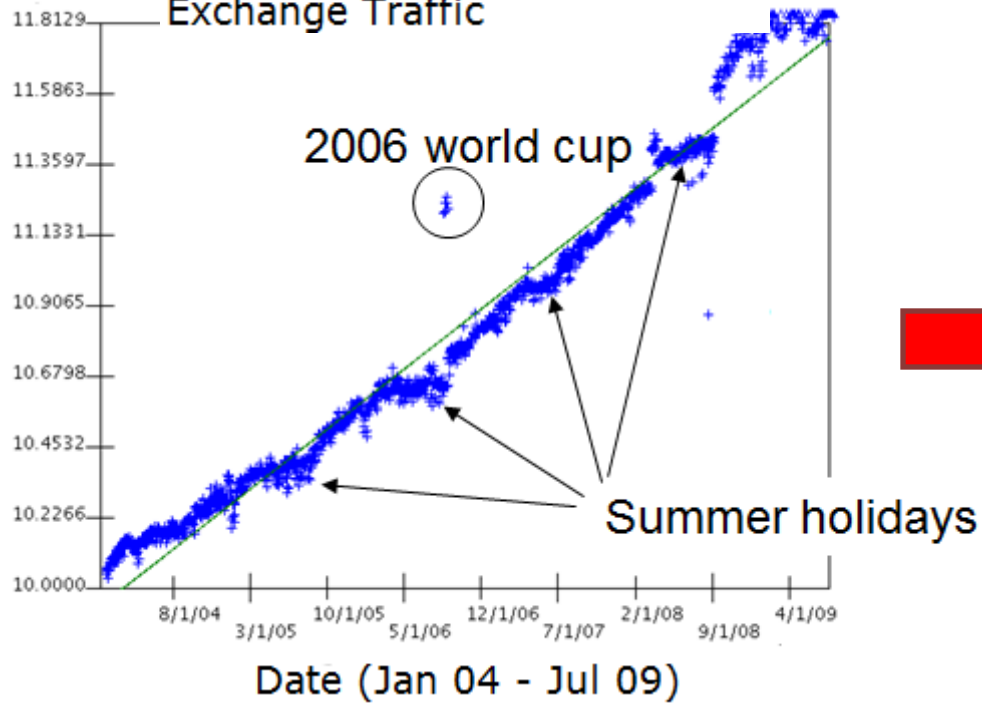


Séamus Hickey

**Thermal Control of PICs
using Micro
Thermoelectric Modules
(μ TEMs)**



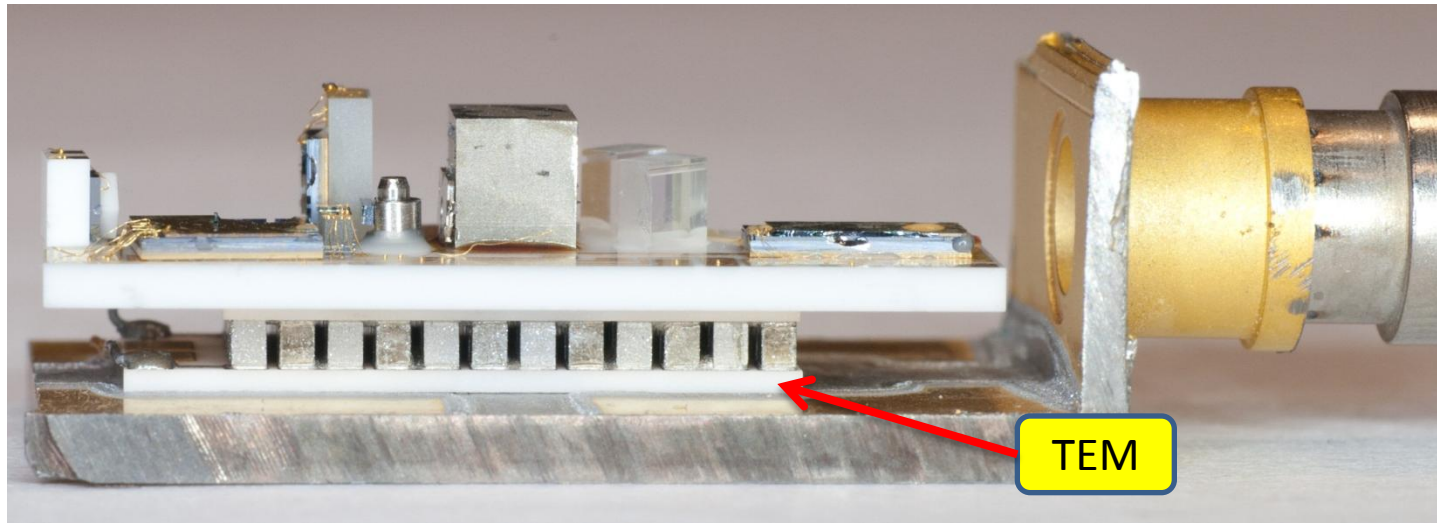
Deutsche Commercial Internet Exchange Traffic



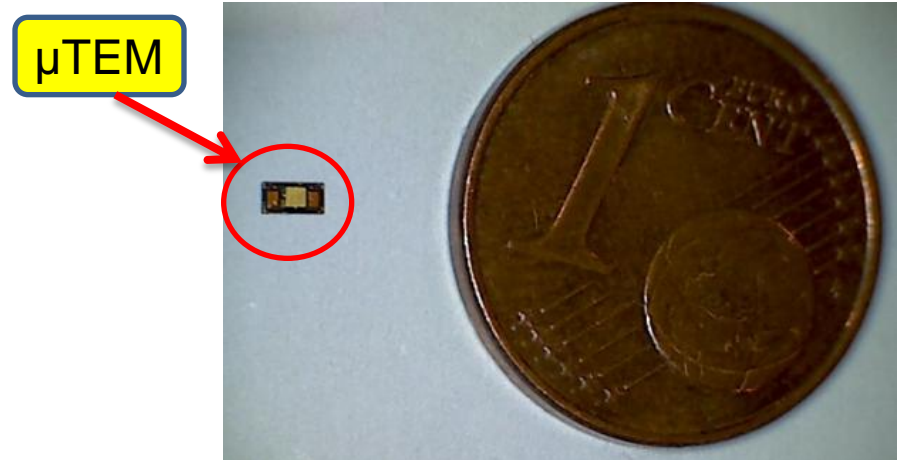
↑ Increased data demand + ↑ Increased laser power



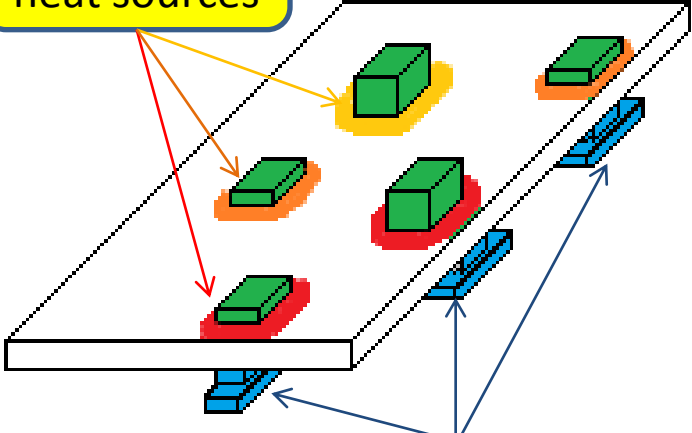
Greater need for Thermal Control



- Multiple components, different temperatures
- Thermoelectric modules (TEMs) cool entire circuit
- Micro thermoelectric modules (μ TEMs) address hotspots



Multiple heat sources



Individual temperature control μTEMs



THESIS

THESIS IN 3: THE ELEVATOR PITCH FOR A PHD

