lopoco
low power systems

Team

- **Andrew Sharp, CEO and co-founder.**
  Engineer and Manager in the server business since the mid-1980s

- **Peter Theunis, Co-founder and CTO.**
  > 10 years of experience in large scale systems deployments

- **Jack Mills, VP of Engineering.** (Advisor)
  Architect of the Pentium and Itanium processors at Intel; former Director of advanced processor research at Intel

- **Mark Brine, CFO.** (Advisor, Board member)
  Director of Finance at Cloudera.

Problem

WASTEFUL!

Conventional servers waste **more than 1/2** the power they consume

- 100s of millions of $$ for large data centers

- Not good for SMBs either

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Solution

Lopoco Ultra-efficient servers

1/4 the power

- >50% Reduction in Data center OpEx

- **Lopoco** servers
    Cool and quiet => more reliable
    Less power => greater density

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Irresistible Value Proposition

Savings per year on just electricity costs <small>12c/kWH</small>

Servers/yr	100	1,000	50,000
Conventional	$42,500	$425,000	$21,250,000
Lopoco	$10,500	$105,000	$5,250,000
Savings	**$32,000**	**$320,000**	**$16,000,000**

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Irresistible Value Proposition

Total Savings - Large Data Center <small>3 year estimated</small>

40k Servers	$50/watt	$75/watt
Conventional	$350,000,000	$525,000,000
Lopoco	$100,000,000	$150,000,000
Savings	**$250,000,000**	**$375,000,000**

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Traction

- Revenue to date: >$100k [Aug 2014]

- over 60 systems shipped

- 75% repeat customer rate

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POWER ASSURE

PAR[4]® - Energy Efficiency Certification

Sample Card Number: PA20130905220238001
Date: 2013-09-05

Machine Specification:

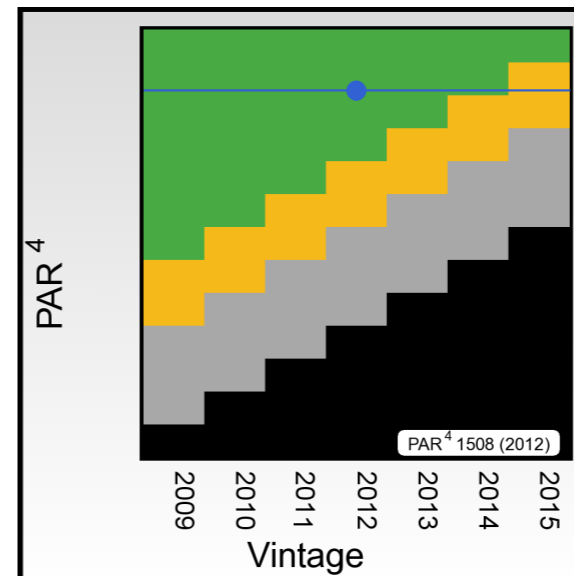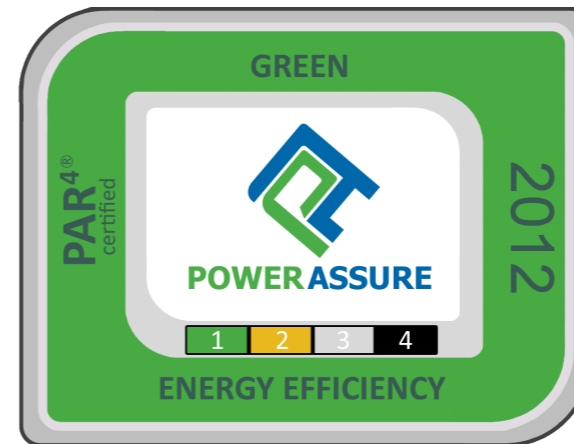**Lopoco LP-4250 LP-4250-6H**
1 intel Xeon E3-1265L V2 @2.5GHz, 4 cores
2 Kingston 9965525-018.A00LF 4GB @1333MHz
6 WDC WD10JPVT-00A SATA 1000GB @5400RPM
1 generic low-power @200W

Results:

Vintage PAR[4]:	1,508
Vintage Year:	2012
PAR[4] Rating:	GREEN
Absolute PAR[4]	2,108
3 Year Cost (Est):	$91.46

GREEN

PAR[4] certified

2012

POWER ASSURE

1 2 3 4

ENERGY EFFICIENCY

PAR[4]

PAR[4] 1508 (2012)

Vintage

2009 2010 2011 2012 2013 2014 2015

Power Consumption Details				
OFF	IDLE	LOADED	PEAK	BOOT TIME
7.489W	26.61W	67.57W	67.57W	84s
121.7V	121.8V	121.9V	121.9V	
0.184A	0.286A	0.583A	0.583A	
0.3PF	0.8PF	0.9PF	0.9PF	

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PAR⁴® - Energy Efficiency Certification

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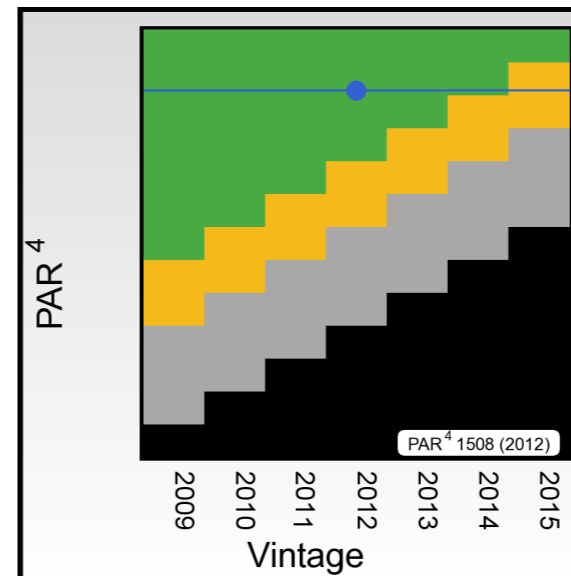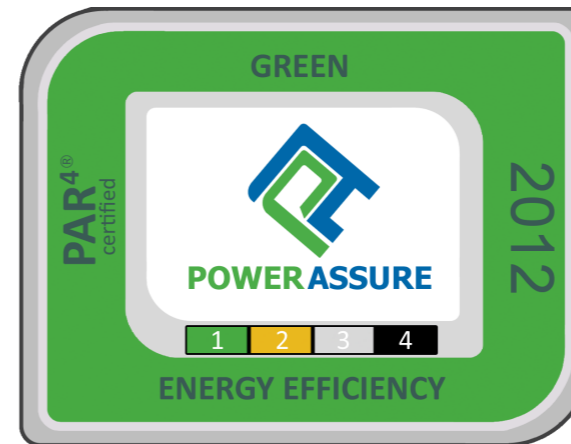
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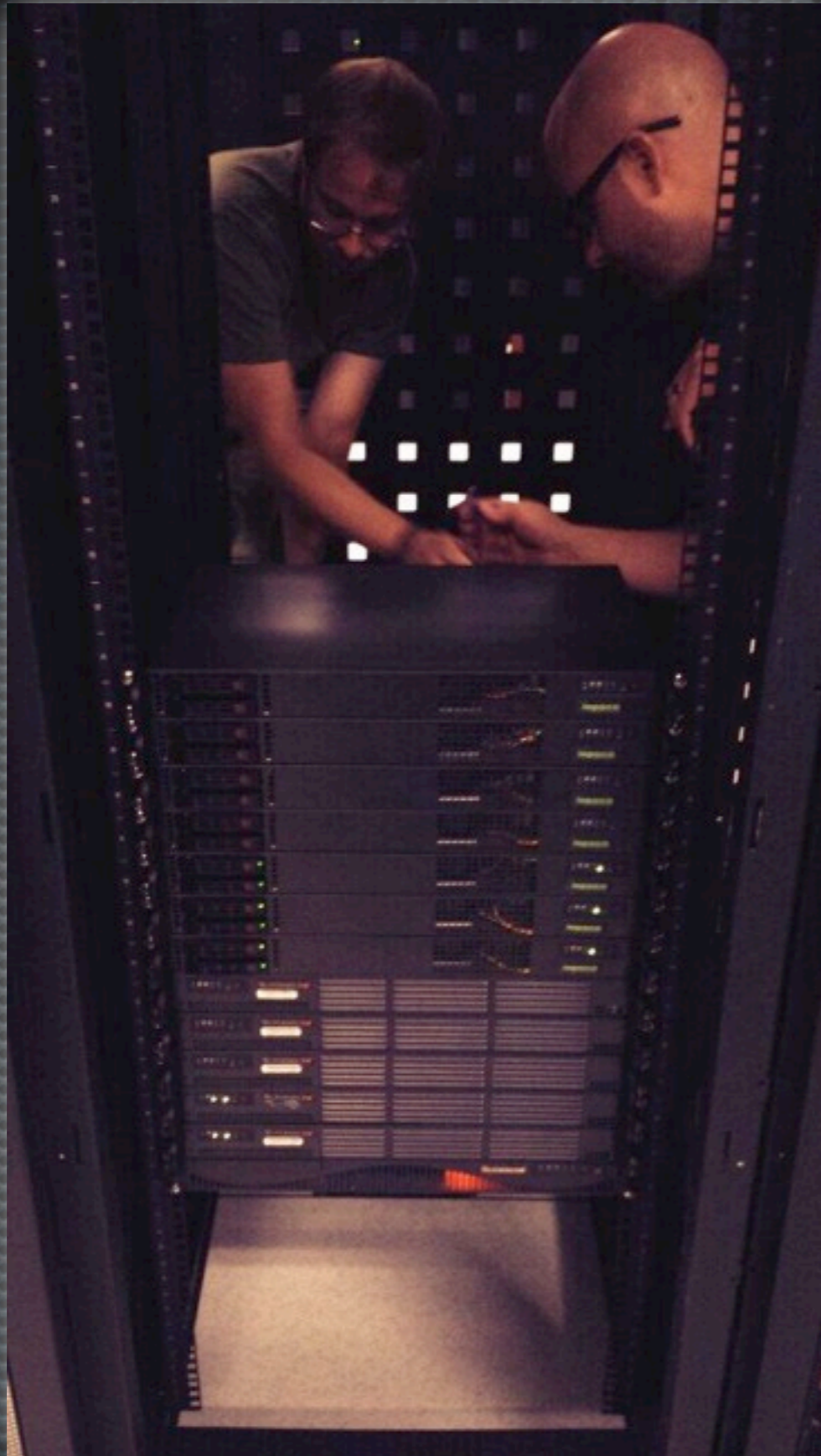| OFF	IDLE	LOADED	PEAK	BOOT TIME
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Customers
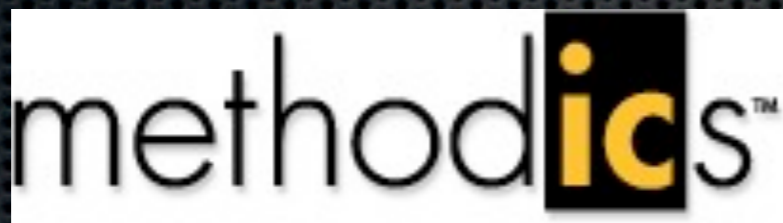
Customer Tweets

Tweet pic from customer showing them building out a rack with Lopoco servers

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Competition

SeaMicro (nee AMD), Moonshot, Calxeda, Servergy

Products customers don't want:

- Proprietary hardware - large burn rate

- Custom silicon - massive burn rate

- Not efficient OR low power!

- Weird processors, weird form factors, just weird

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	SeaMicro	OCP	Calxeda	Servergy	Moon	**Lopoco**
Low Power						✓
Efficiency Gain	20%	15%	?	?	?	**75%**
X86	✓	✓			✓	✓
No Custom Silicon		✓				✓
No Custom electronics						✓
64-bit	✓	✓		✓	✓	✓
VM acceleration	✓	✓				✓
Standard Form Factors						✓
ASP	$1m	$20k	$50k	?	$25k	**$2.5k**
Customers	✓	✓	?		?	✓
Shipping	✓	✓	✓	✓	✓	✓
Ultra-high density			✓		✓	

Moon = HP Moonshot
OCP = Open Compute Project

Market Strategy

- Direct sales

- VAR and reseller channels

Exit

- Disruptive product: acquisition most likely

- $300mm revenue/yr in 3 years = $2bb acquisition valuation

  [1000 servers ~= $2.5m]

  [Over 100 NA customers buy in quantities of 1000/month]

- Similars:

  - $2bb Cobalt Systems, purchased by Sun in 2000

  - $335mm Seamicro, purchased by AMD in March

  - $1bb Wyse Technology (low power desktops) purchased by Dell in August 2012

  - Too many others to list

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