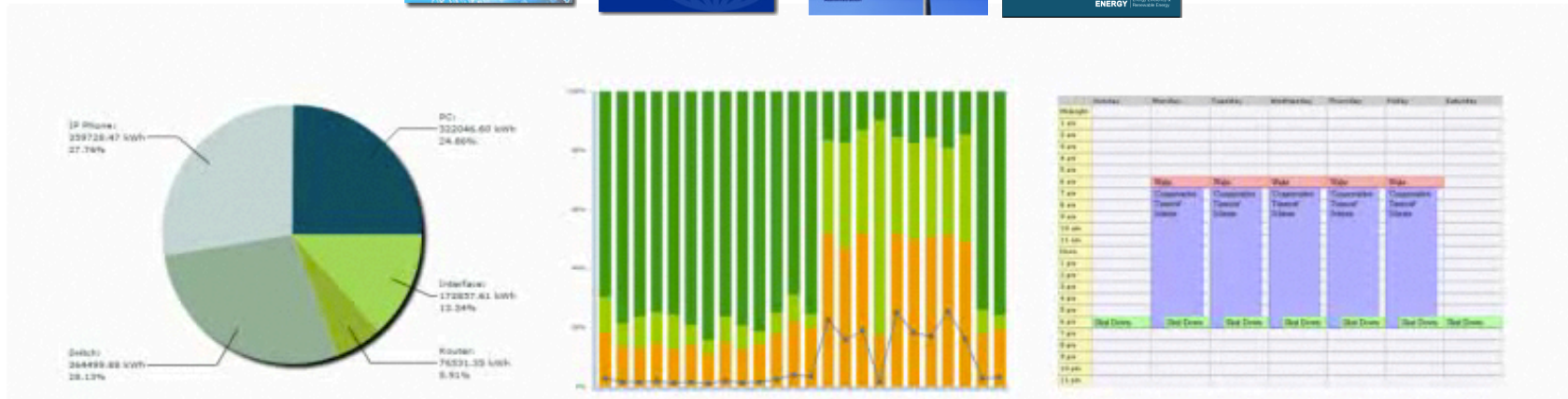
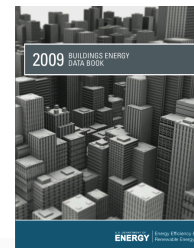


Mreža kao platforma za mjerenje, nadzor i
upravljanje potrošnjom energije

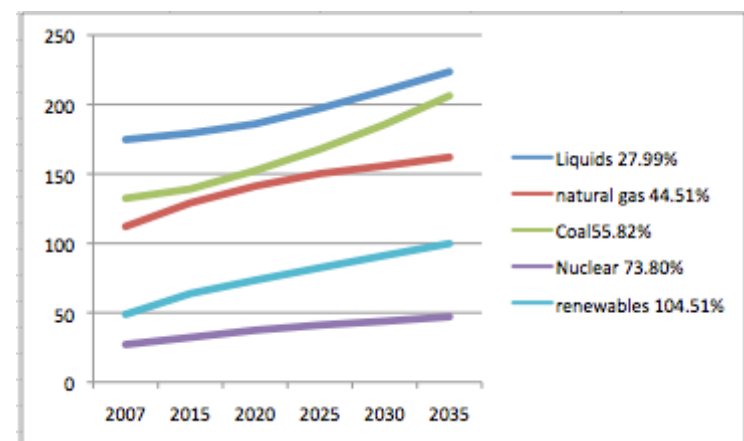
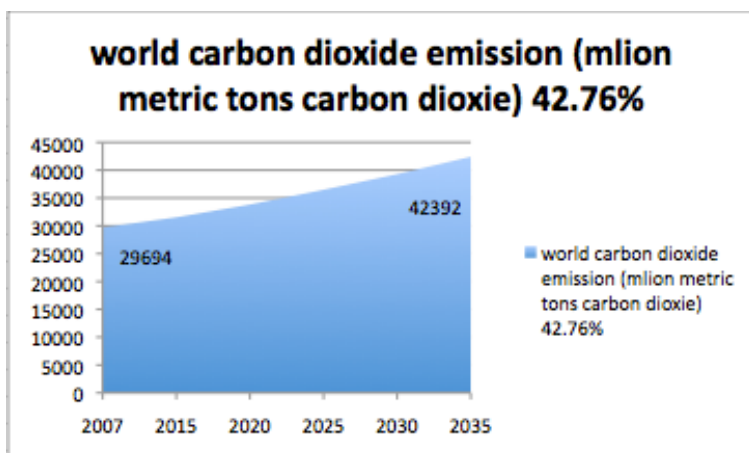
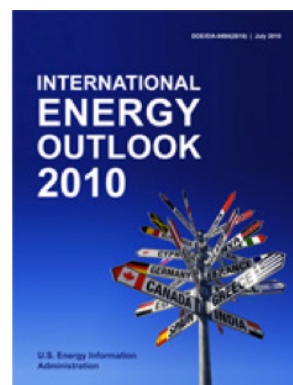
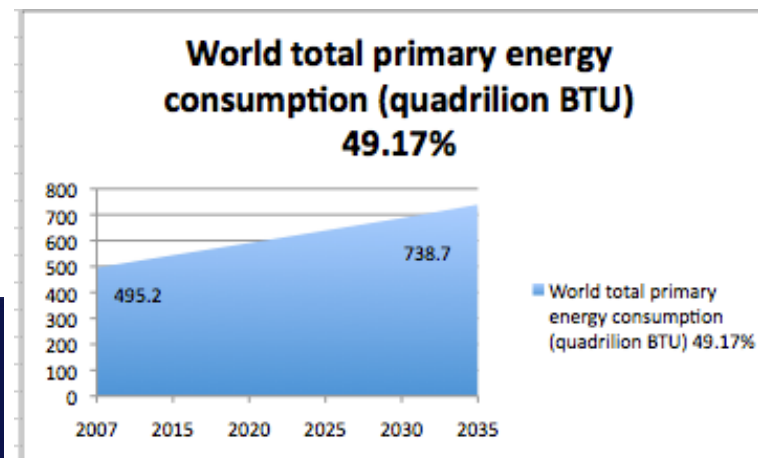
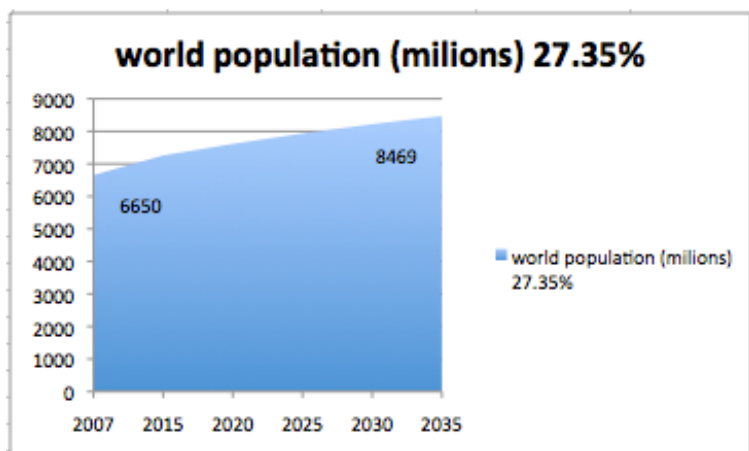
Josip Zimet

Cisco

EW je još jedna IT usluga koja omogućava migriranje IT iz troška u profitnu organizaciju .. EW je mežna usluga, ugrađena u mrežne uređaje i ponaša se kao Cloud Computing



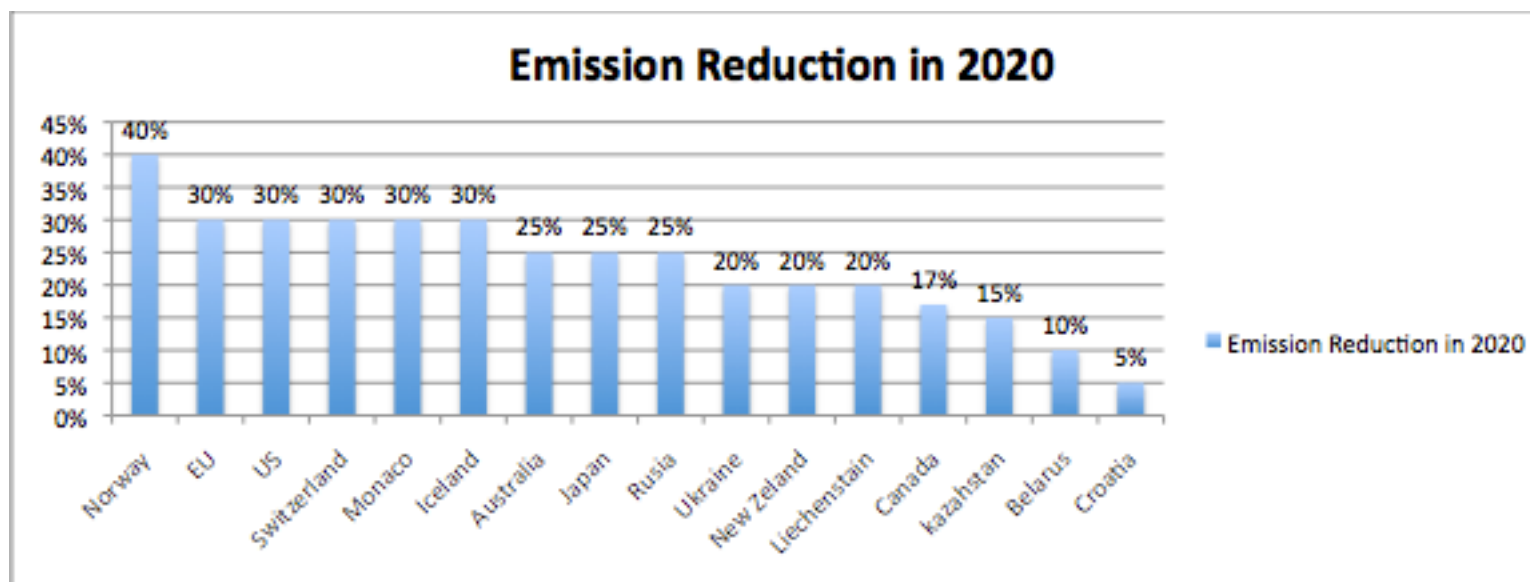
Svjetske vlade zabrinute su za porast svjetske populacija, Porast potreba za energijom, porast cijena energije, porast emisije CO2 ...



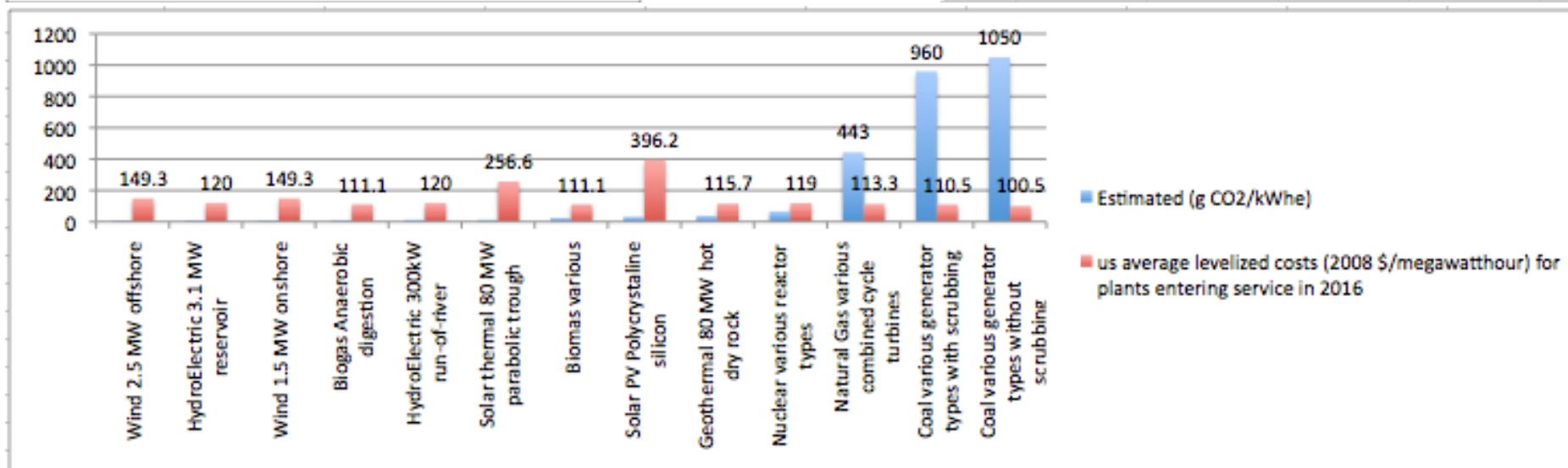
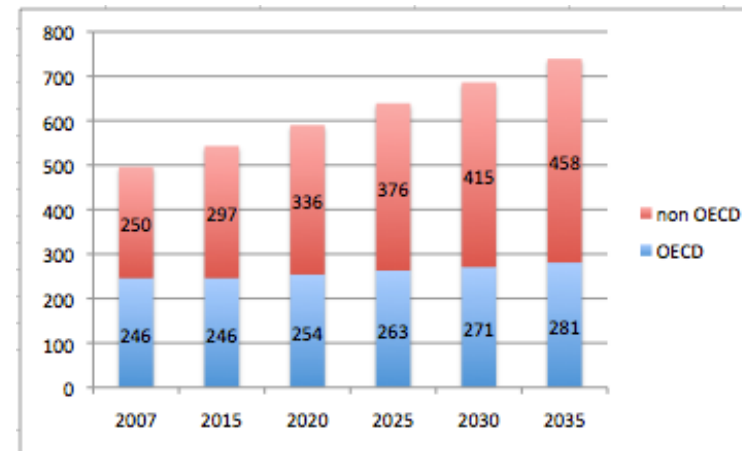
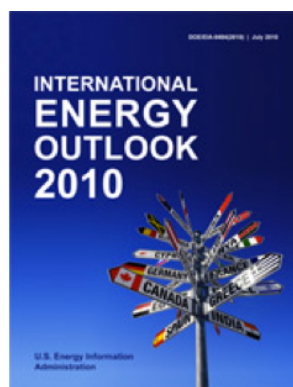
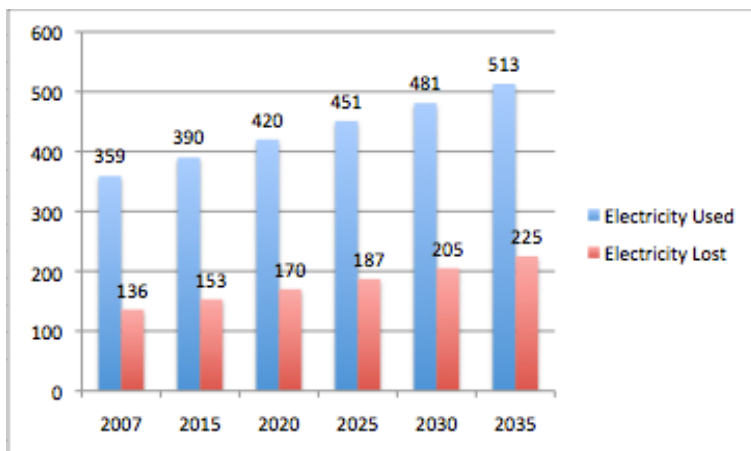
Svjetske vlade poticjano djeluju na smanjenje CO2 ... Appendix I – Quantifies Economy Wide emissions targets for 2020



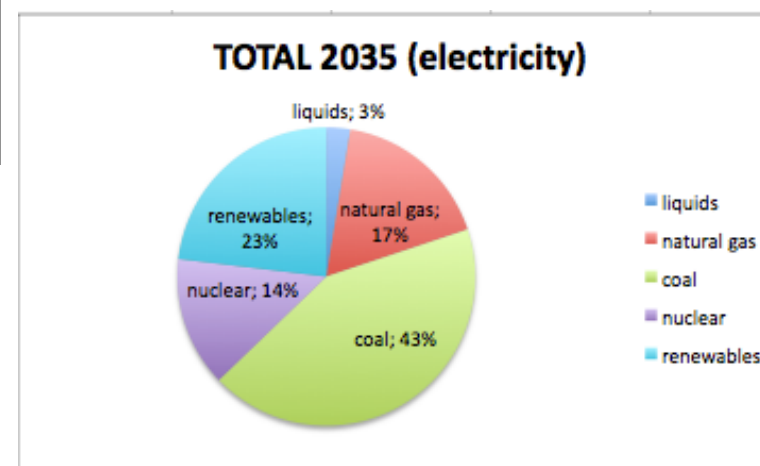
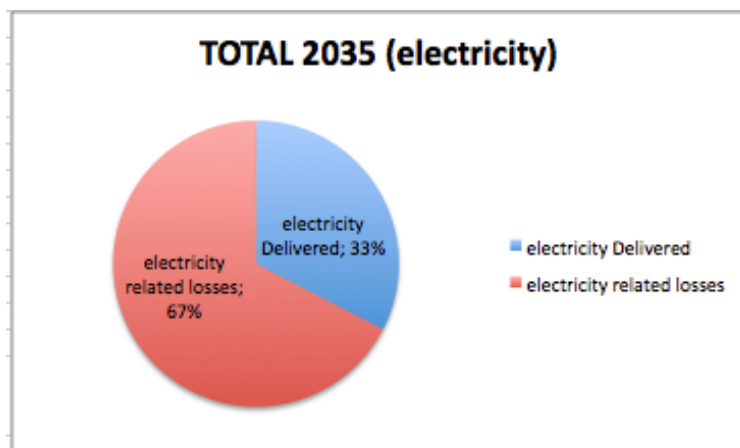
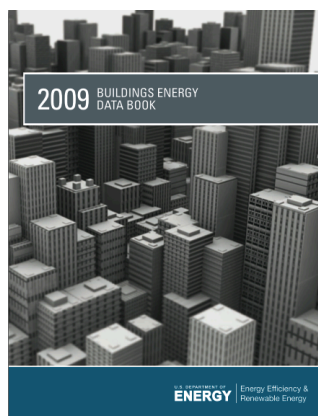
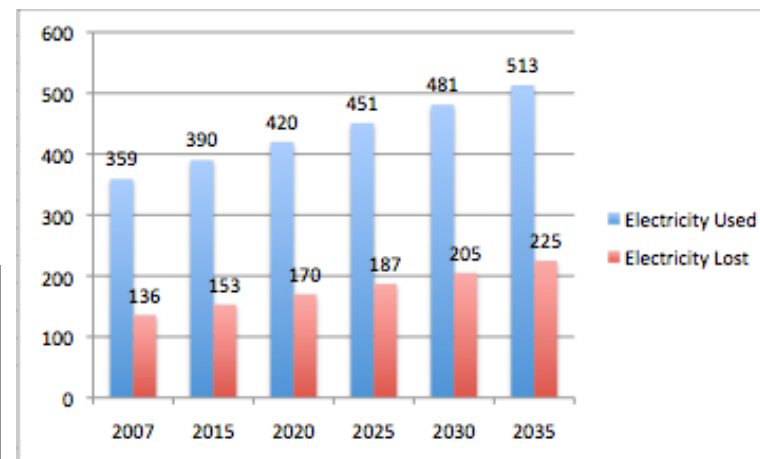
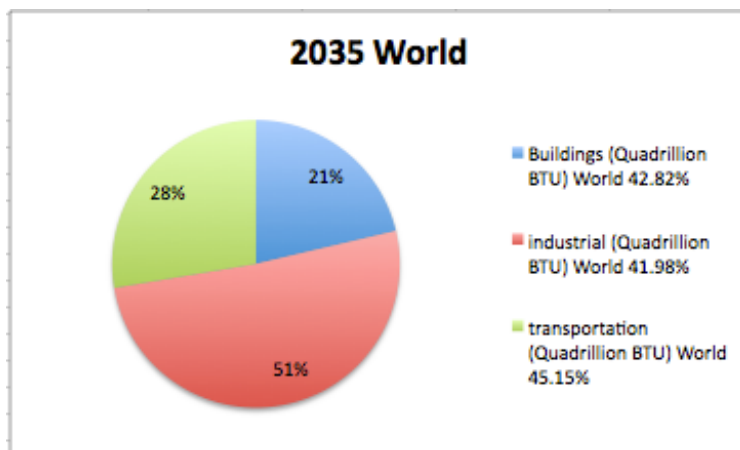
<http://unfccc.int/home/items/5264.php>



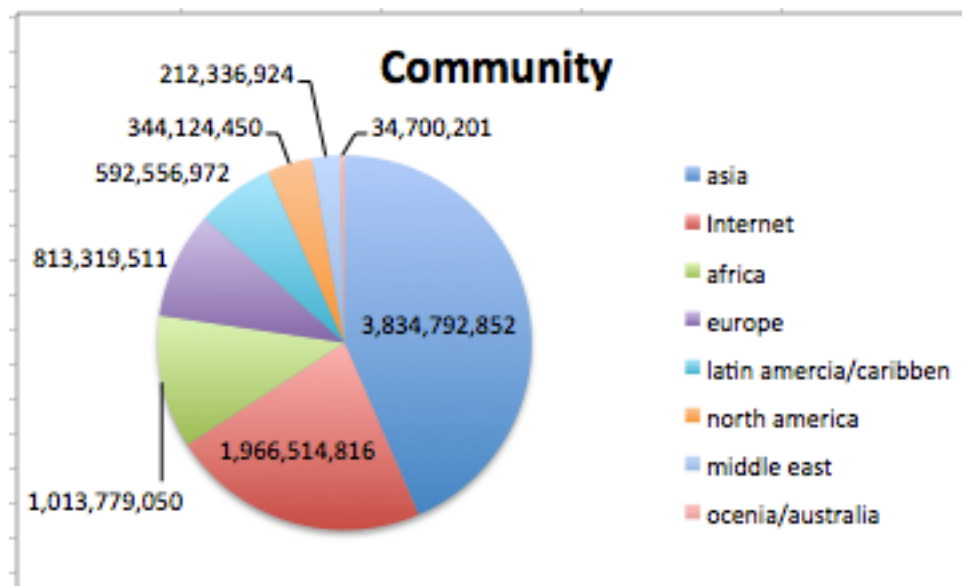
Gašenje ugljena kao pogonskog goriva zbog previsoke emisije CO₂ ... Cijena energije raste zbog prijelaza na skuplje obnovljive izvore energije



Energija po sektorima, Struja ... zastarjele mreže za prijenos i distribuciju struje ... gubici energije u proizvodnji, prijenosu i distribuciji



Internet statistika ... Internet je nakon Azije druga zajednica po veličinie



EW je u preklopnicama i usmjerivačima, ne naplaćuje se ... Pobrišite postavke na preklopniku, pokrenite 4 naredbe i spremni ste slati upite u cloud computing mrežnu infrastrukturu



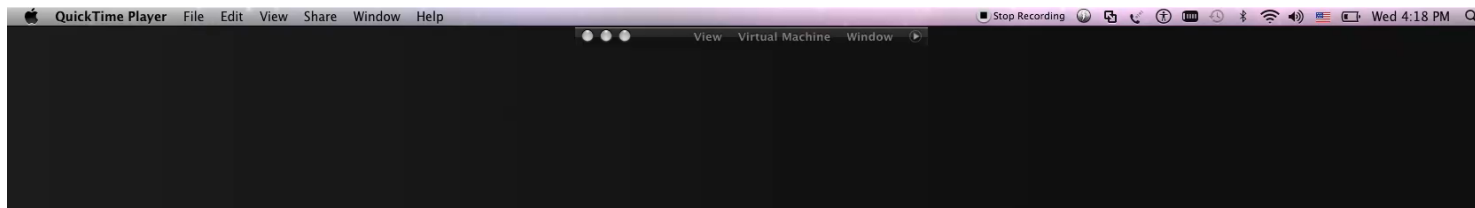
```
Terminal — telnet — 231x47
EnergyWiseSwitch#
EnergyWiseSwitch#
EnergyWiseSwitch#
EnergyWiseSwitch#

1. clock set 22:22:00 15 September 2010
2. energywise domain cisco security shared-secret 0 cisco
3. energywise management security shared-secret 0 cisco
4. energywise allow query save

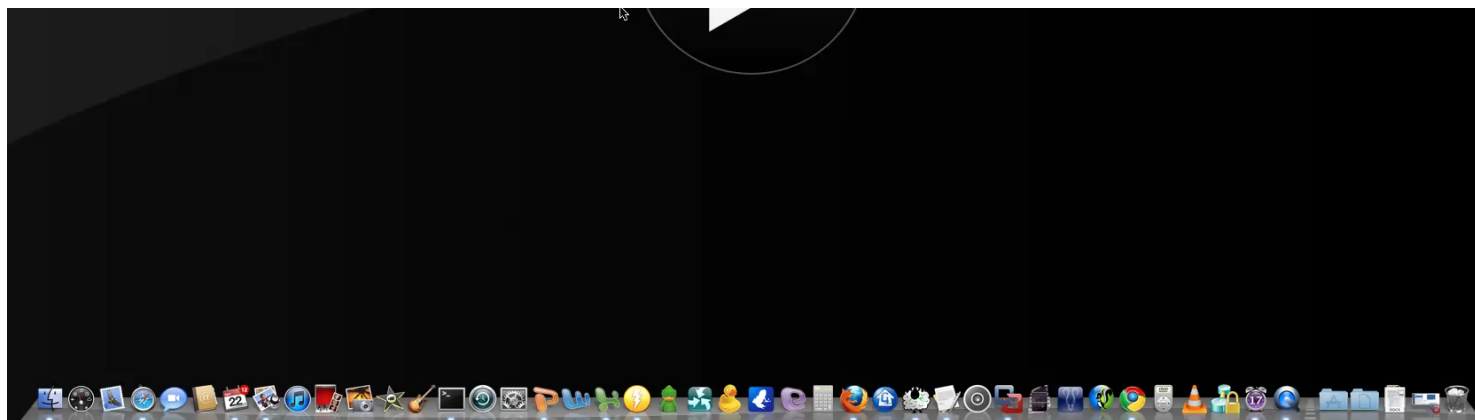
5. show energywise level children
6. energywise query importance 100 name * sum usage
7. energywise query importance 100 name LT* sum usage
8. energywise query importance 50 name LT* set level 0
9. energywise query importance 50 name LT* set level 10
10. int range fast 1/0/2-4
11. energywise level 0 recurrence importance 100 at 20 0 * * *
12. energywise level 10 recurrence importance 100 at 8 0 * * *

EnergyWiseRouter#
```

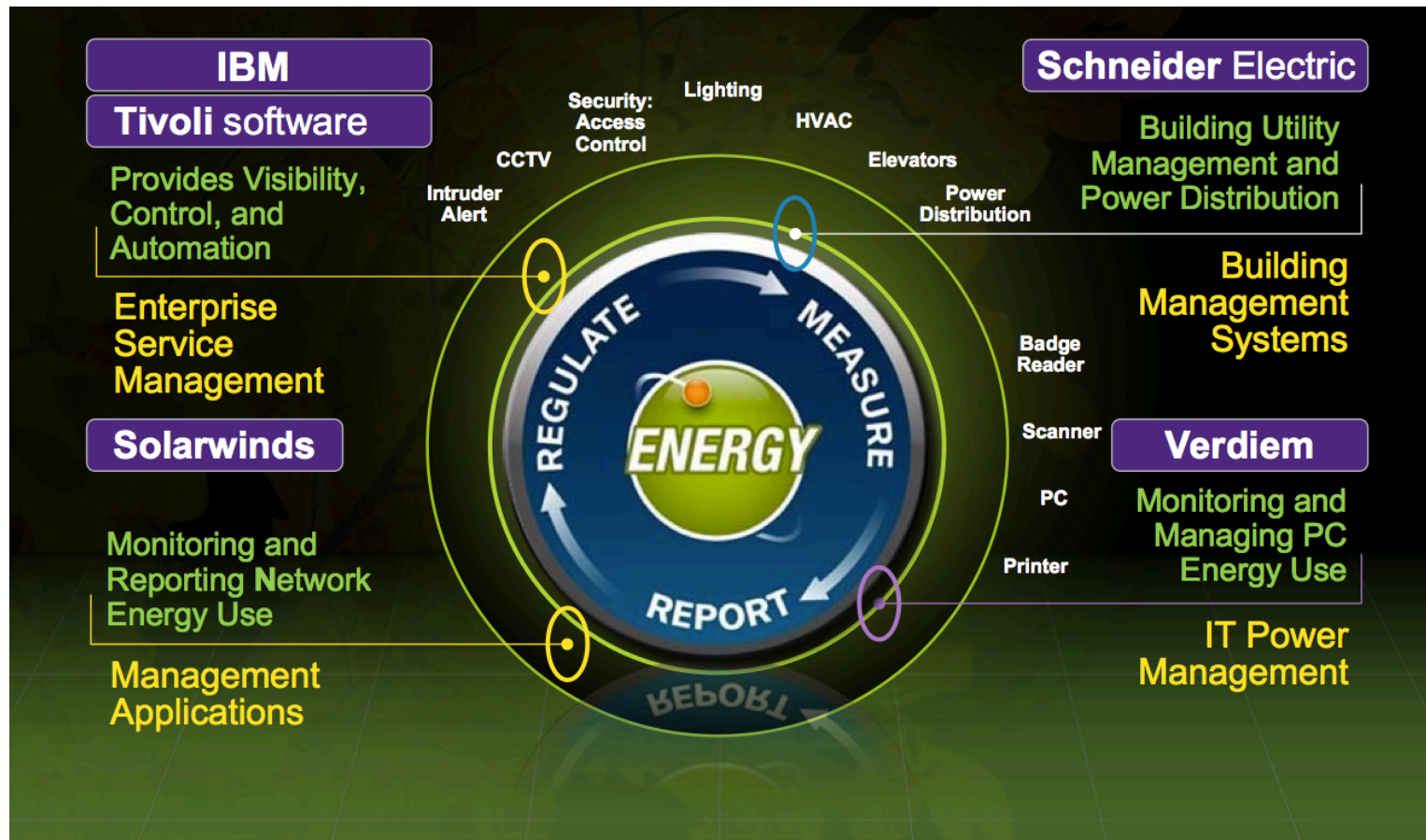

Orchestrator nudi grafički prikaz EW i API za pristup ... Plaća se ... po čvoru ..aktiviranje u 4 koraka



1. Edit C:\Inetpub\wwwroot\Cisco Systems\EnergyWiseProvisioningService\Web.config
2. Adjust (add ip address of switch)
3. Save the web.config file.
4. Restart the EnergyWiise [Proxy Service in the Services Control Panel so it picks up its new configuration.](#)



EnergyWise Partneri – Tko se koristi API pristupom



Tipičan sustav



Cisco EnergyWise Orchestrator
Administrator Console

Reports ▾ Devices ▾ Policies ▾ Permissions ▾ Server ▾ User: Unknown Help

Manage Devices

Groups Policies PC Subnets Search

Include devices in subgroups

- ▼ Root Device Group
 - Default
 - Finance
 - IT**
 - Marketing
 - ▼ Sales
 - North America - Central
 - North America - East
 - North America - West
 - Support

Devices Charts

Showing 18 devices • Groups: IT • Policies: All • Device Families: All • PC Subnets: All

Set Power Level ▾ Assign Policies ▾ Move to Group ▾ Edit Devices ▾ Customize View

Device Name ▲	Device Status	Device Family	IP Address	Usage in Watts	Caliber (Energy)	Keywords (Ener	Policy Status	Assigned Policy	Policy Assignment	Assigned Grou
Device-207	Checking in	PC	10.2.1.209	65.00	Presumed		Delivered	Default	Rule	IT
Device-208	Checking in	WAP	10.2.1.210	13.08	Actual		Delivered	Standard Deskto	Rule	IT
Device-209	Checking in	WAP	10.2.1.211	12.18	Actual		Pending	Standard Laptop	Rule	IT
Device-210	Not checking in	PC	10.2.1.212	65.00	Presumed		Delivered	Exception Policy	Rule	IT
Device-212	Not checking in	Router	10.2.1.214	766.31	Actual		Delivered	Standard Deskto	Rule	IT
Device-213	Checking in	PC	10.2.1.215	65.00	Presumed		Delivered	Standard Laptop	Rule	IT
Device-216	Checking in	PC	10.2.1.218	65.00	Presumed		Delivered	Standard Deskto	Rule	IT
Device-217	Checking in	PC	10.2.1.219	65.00	Presumed		Delivered	Standard Laptop	Rule	IT
Device-219	Checking in	PC	10.2.1.221	65.00	Presumed		Delivered	Default	Rule	IT
Device-220	Checking in	PC	10.2.1.222	65.00	Presumed		Delivered	Standard Deskto	Rule	IT
Device-221	Not checking in	IP Phone	10.2.1.223	10.12	Actual		Delivered	Standard Laptop	Rule	IT
Device-223	Checking in	PC	10.2.1.225	65.00	Presumed		Delivered	Default	Rule	IT
Device-225	Checking in	PC	10.2.1.227	65.00	Presumed		Delivered	Standard Laptop	Rule	IT
Device-226	Checking in	PC	10.2.1.228	65.00	Presumed		Delivered	Exception Policy	Rule	IT
Device-229	Checking in	PC	10.2.1.231	65.00	Presumed		Pending	Standard Laptop	Manual	IT
Device-230	Checking in	PC	10.2.1.232	65.00	Presumed		Delivered	Exception Policy	Rule	IT
Device-233	Checking in	PC	10.2.1.235	65.00	Presumed		Delivered	Standard Laptop	Rule	IT
Device-234	Checking in	PC	10.2.1.236	65.00	Presumed		Delivered	Exception Policy	Rule	IT

Demonstracija



QuickTime Player File Edit View Share Window Help

Power Management Adminis x

http://10.1.41.17/admin/

Apple Yahoo! Google Maps YouTube Wikipedia News Popular My Business Reports Energywise Orchestra virtual lab camera Cisco Network Buildir Other Bookmarks

Cisco EnergyWise Orchestrator Administrator Console

Reports Devices Policies Permissions Server User: Administrator Help

Manage Devices

Groups Policies PC Subnets Search

Include devices in subgroups

- Power Management
 - ▼ Demo
 - ▼ Building 10 EBC
 - Sydney
 - ▼ Building 17
 - Cubicle
 - Lobby
 - Infrastructure
 - WoL Proxies

Devices Charts

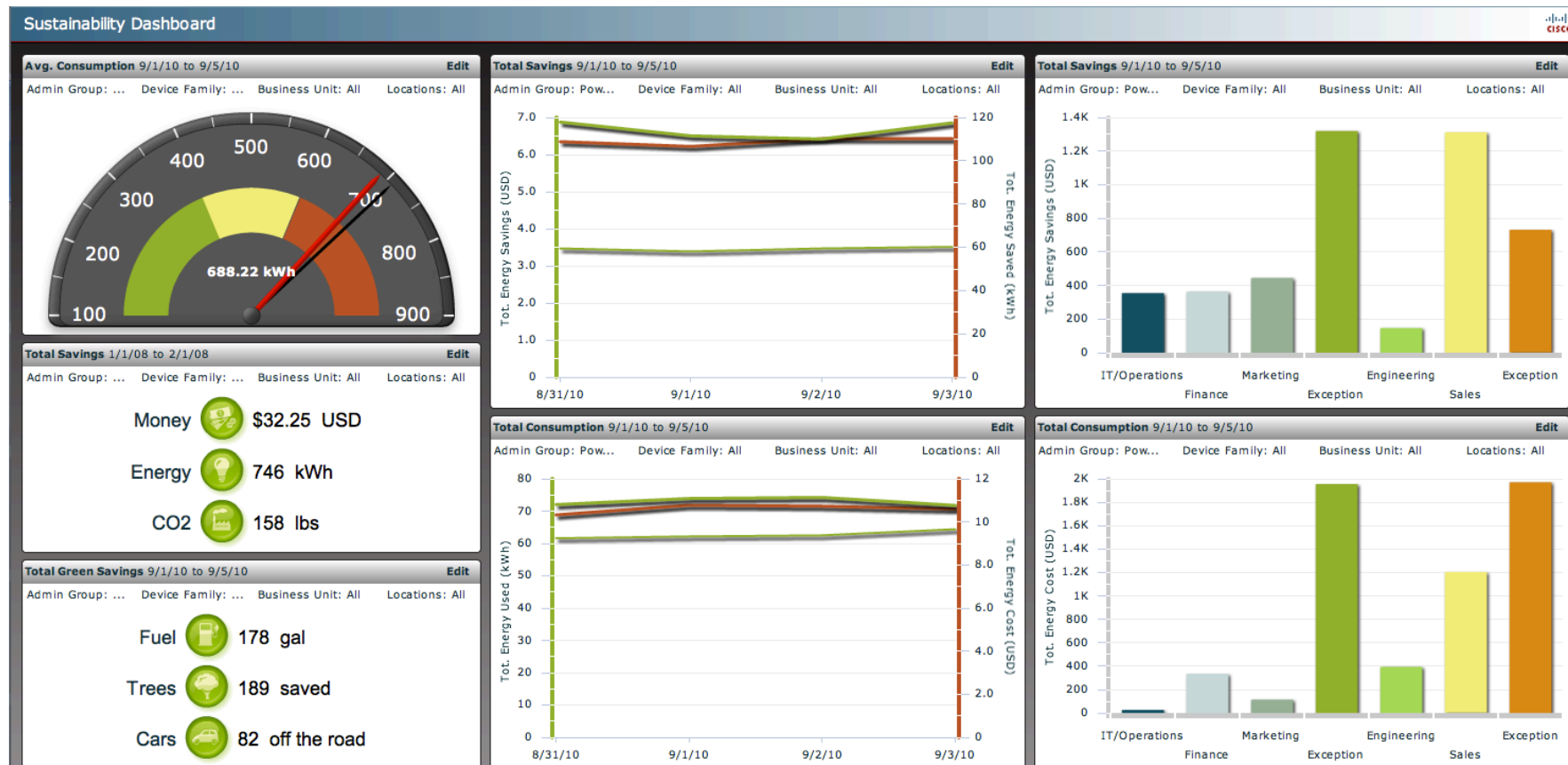
Showing 3 devices (1 selected) • Groups: Lobby • Policies: All • Device Families: All • PC Subnets: All

Set Power Level Assign Policies Move to Group Edit Devices Customize View

Device Name ▲	Device Status	Device Family	IP Address	Usage in Watts	Caliber (Energy)	Keywords (Ener)	Policy Status	Assigned Policy	Policy Assignment	Assigned Group	Group Assignment	Wak
Host 10.1.41.2:	Not checking in	WAP		10.46	Actual	registerA	Delivered	No Enforcement	Rule	Lobby	Manual	
Host 10.1.41.2:	Not checking in	IP Phone		8.33	Actual	registerA	Delivered	No Enforcement	Rule	Lobby	Manual	
sjc-17-lobby-pc	Checking in	PC	10.1.41.25	N/A	N/A		Delivered	DI-Data Demo	Manual	Lobby	Manual	

Mac OS X dock with various application icons.

Dashboard – otkrite koji odjel koliko troši i štedi



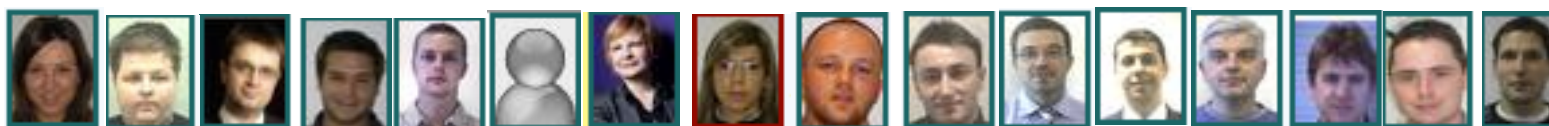
Izveštaj aktivnosti na osobnom računalu



Izveštaj aktivnosti opsobnog računala i monitora



Račun za struju Cisco ureda u Hrvatskoj



OBRAČUN POTROŠNJE RADNE ENERGIJE

VIŠA TARIFA 11039 kWh x 0,58 kn = 6.402,62 kn

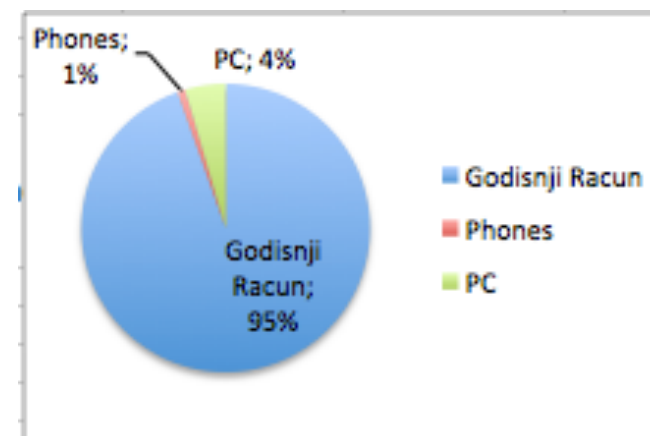
NIŽA TARIFA 7274 kWh x 0,29 kn = 2.109,46 kn

UKUPNO POTROŠNJA RADNE ENERGIJE= 8.512,08 kn

FAKTOR POTROŠNJE RADNE SNAGE: 0,0673

OBRAČUN ANGAŽIRANE RADNE SNAGE= 63.589,12 kn

**NAKNADA ZA POTICANJE PROIZV. IZ
OBNOVLJIVIH IZVORA= 18313 kWh**



UKUPAN OBRAČUN POTROŠNJE ELEKTRIČNE ENERGIJE (ZA PLATITI):

8.512,08 kn + 4.279,55 kn + 91,57 kn = **12.883,20 kn** + PDV

Saznajte koliko možete smanjiti emsiju CO2 i uštediti novaca primjenom kalkulatora

- **Create a customer profile.**
- **Correlate power usage to vertical use.**
- **Demonstrate cross-enterprise savings in watts, dollars, and carbon emissions.**

<http://www.cisco.com/go/energywise/>

DATA

Overview | Your Profile | Assumptions | Notes

Predominant company location: North America
Preferred currency: US Dollar (USD)
Your industry or vertical market: Financial Services
Number of employees in the organization: 18,000
Hours of operation start time: 9:00 AM
Hours of operation end time: 5:00 PM
Overall one year Greenhouse Gas (GHG) emissions reduction goal: 50.0 %
Does your company calculate its GHG emissions baseline? No
Emissions intensity relative to industry: Median
Annual revenue (in millions): \$ 41,000

RESULTS

Effects Summary | Savings | GHG Emissions

Savings with Cisco EnergyWise

Power Savings (kWh)

Year	Power Savings (kWh)
Y1	249K
Y2	21.9M
Y3	17.6M
Y4	13.3M
Y5	9.1M
Y6	4.9M
Y7	617.7K

Cost Savings (\$)

Year	Cost Savings (\$)
Y1	3.6M
Y2	3.1M
Y3	2.6M
Y4	2.1M
Y5	1.6M
Y6	1.1M
Y7	582.4K
Y8	74.1K

GHG Emissions Avoided

Metric Tons CO2e

Year	Metric Tons CO2e
Y1	15.9K
Y2	12.7K
Y3	11.4K
Y4	9.2K
Y5	7K
Y6	4.8K
Y7	2.5K
Y8	324

Contribution to GHG Emissions Reduction Goal

11% of Goal Achieved

Goal: [Bar chart showing goal progress]

Actual: 11%

Annual Emissions Avoided Equivalent to:

- 613.5M Acres of Pine Forest Regeneration
- 494.4K Cars Emissions

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Terms & Conditions | Privacy Statement | Cookie Policy | Trademarks of Cisco Systems, Inc.

Provjerite GhG i novčanu uštedu



12:00 AM

11:30 PM



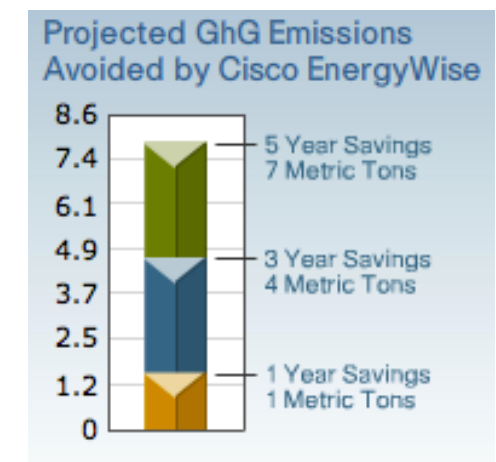
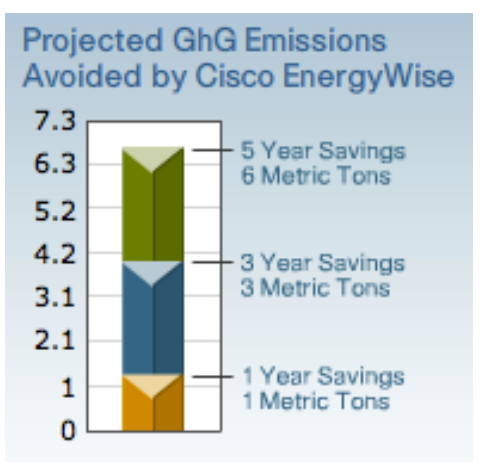
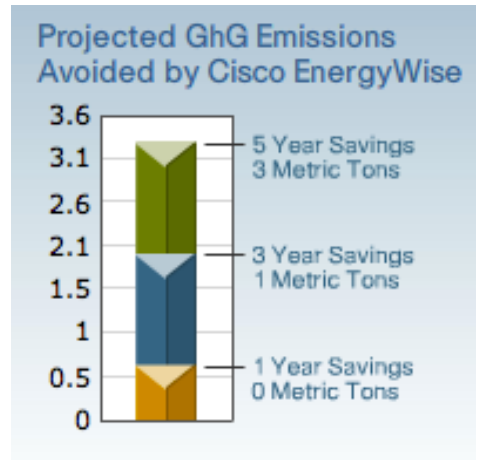
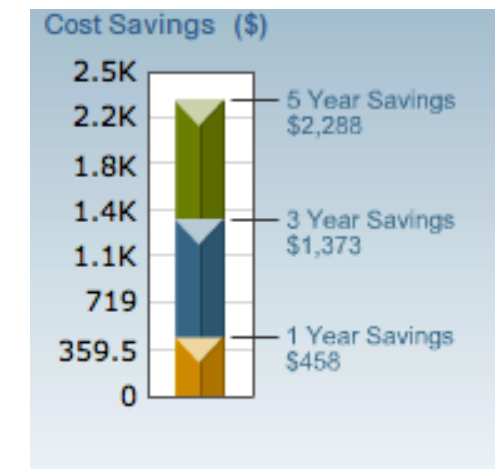
9:00 AM

9:00 PM



9:00 AM

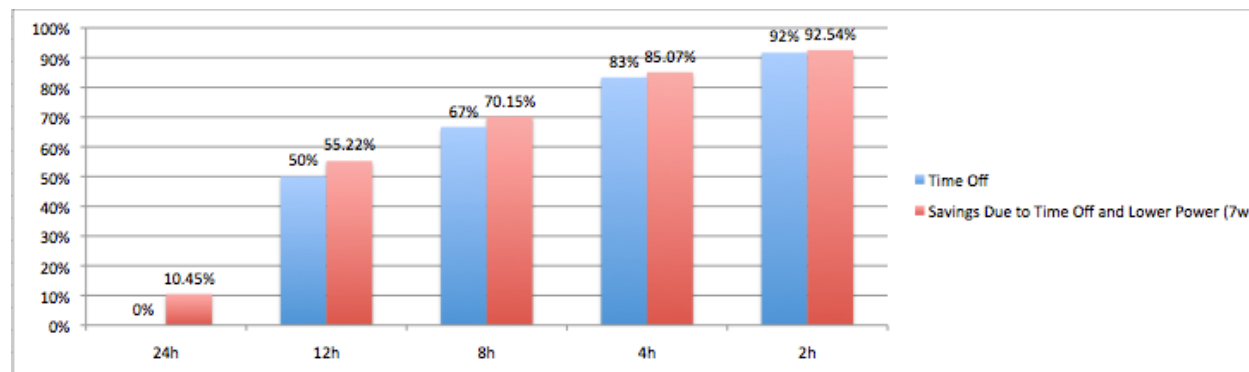
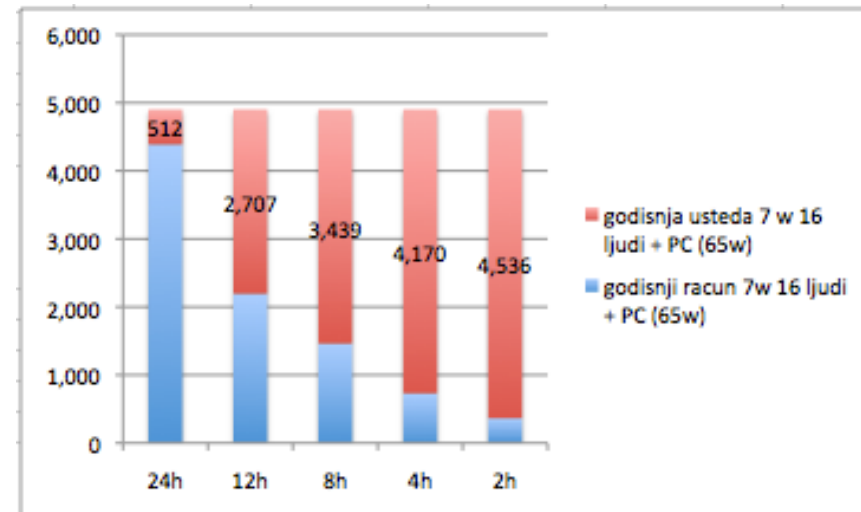
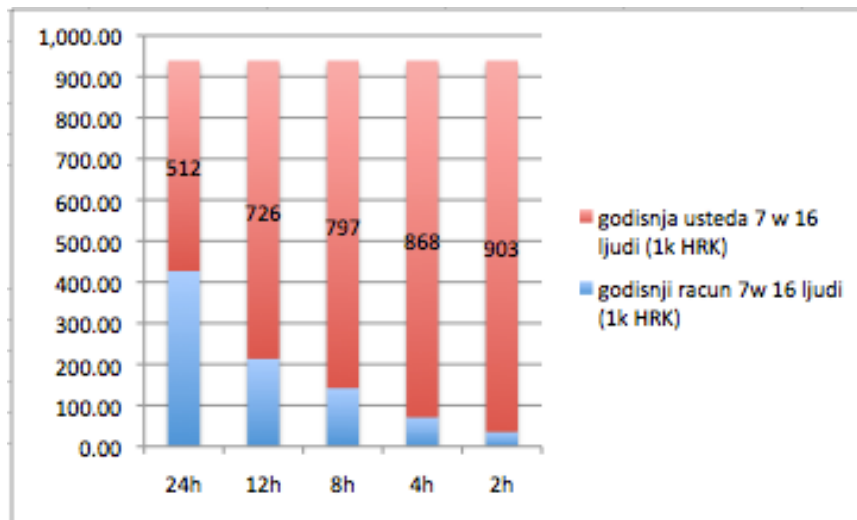
5:00 PM



Kako iskoristiti otvaranje i zatvaranje vrata iskaznicom (badge)



Izvan ureda, ušteda 10% (10w umjesto of 15w), 55% (12h), 70% (8h), 85% (4h), 92% (2h)



Upravljanje energijom i zgradama su danas dva odvojena sustava



Energetski učinkoviti sustavi podrazumijevaju ujedinjavanje



Mrežni administratori postat će administratori energijom



Zašto EnergyWise

Environment



- Reduce greenhouse gas emissions
- Increase sustainability

Cost Reductions



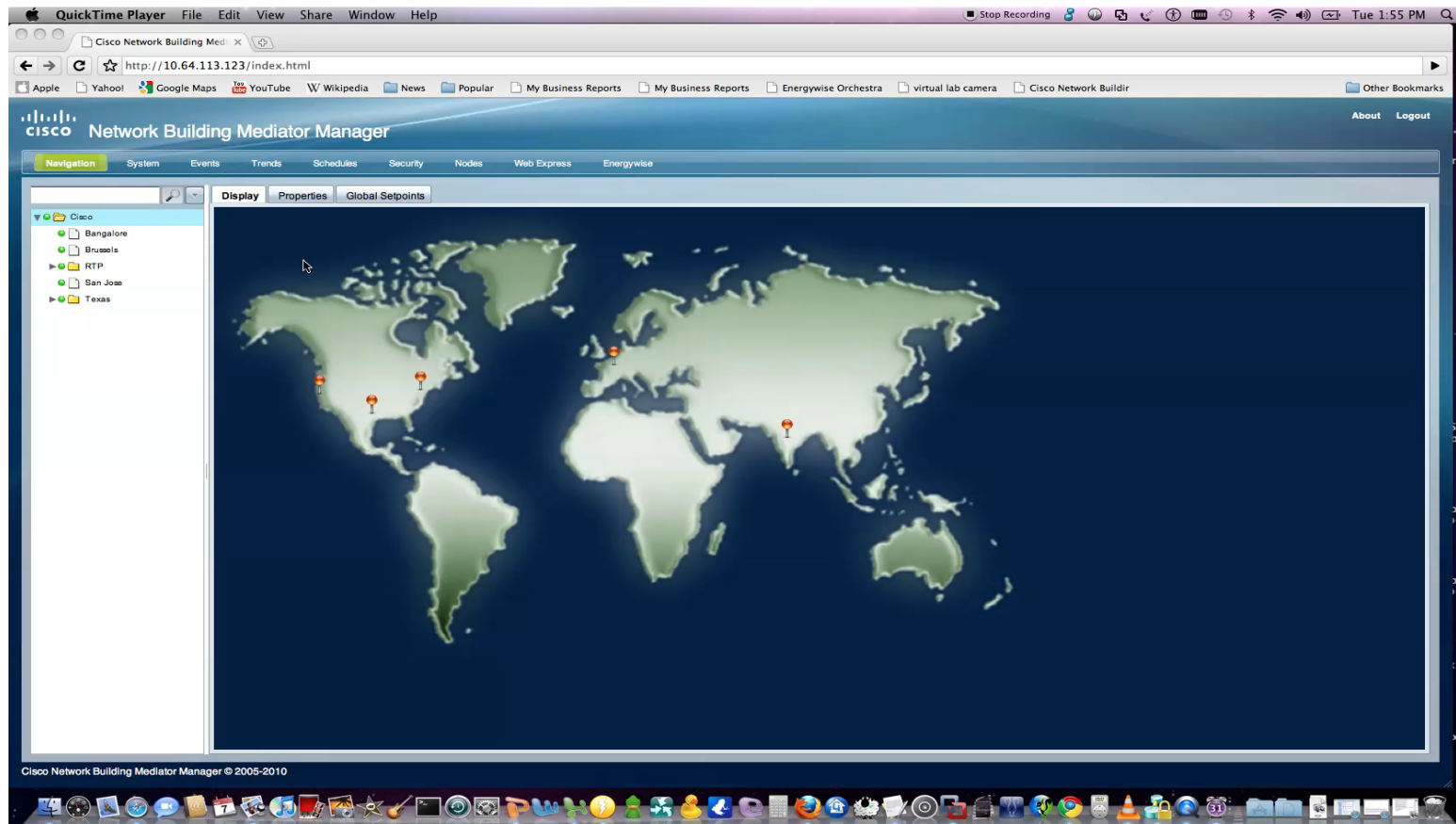
- Reduce energy consumption and cost
- Measure return on investment

Compliance



- Comply with government directives

Demontracija sustava kojeg sve češće očekujemo u budućnosti



Primjećen trend nastajanja cloud computing tvrtki za upravljanje energetsom učinkovitošću



ENERGYSCOREBOARD

A select channels

- Walgreens
 - Modeltype
 - 12104 HAZELHURST
 - Tenda
 - Walgreens-Austin001
 - Alarms
 - Billing Entry
 - Summary Info
 - Austin001-DallasTemp
 - Austin001-Religevation
 - Austin001-Temps
 - Austin001-Zone_Temps
 - Main-PowerMeter
 - Reports

B select reporting duration

start date > 05/25/2009

May, 2009

Su	Mo	Tu	We	Th	Fr	Sa
26	27	28	29	30	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6

end date > 05/26/2009

May, 2009

Su	Mo	Tu	We	Th	Fr	Sa
26	27	28	29	30	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6

C select report style

unit > INTERVAL

- INTERVAL
- DAILY
- MONTHLY

display style > CHART

- chart
- table
- CSV

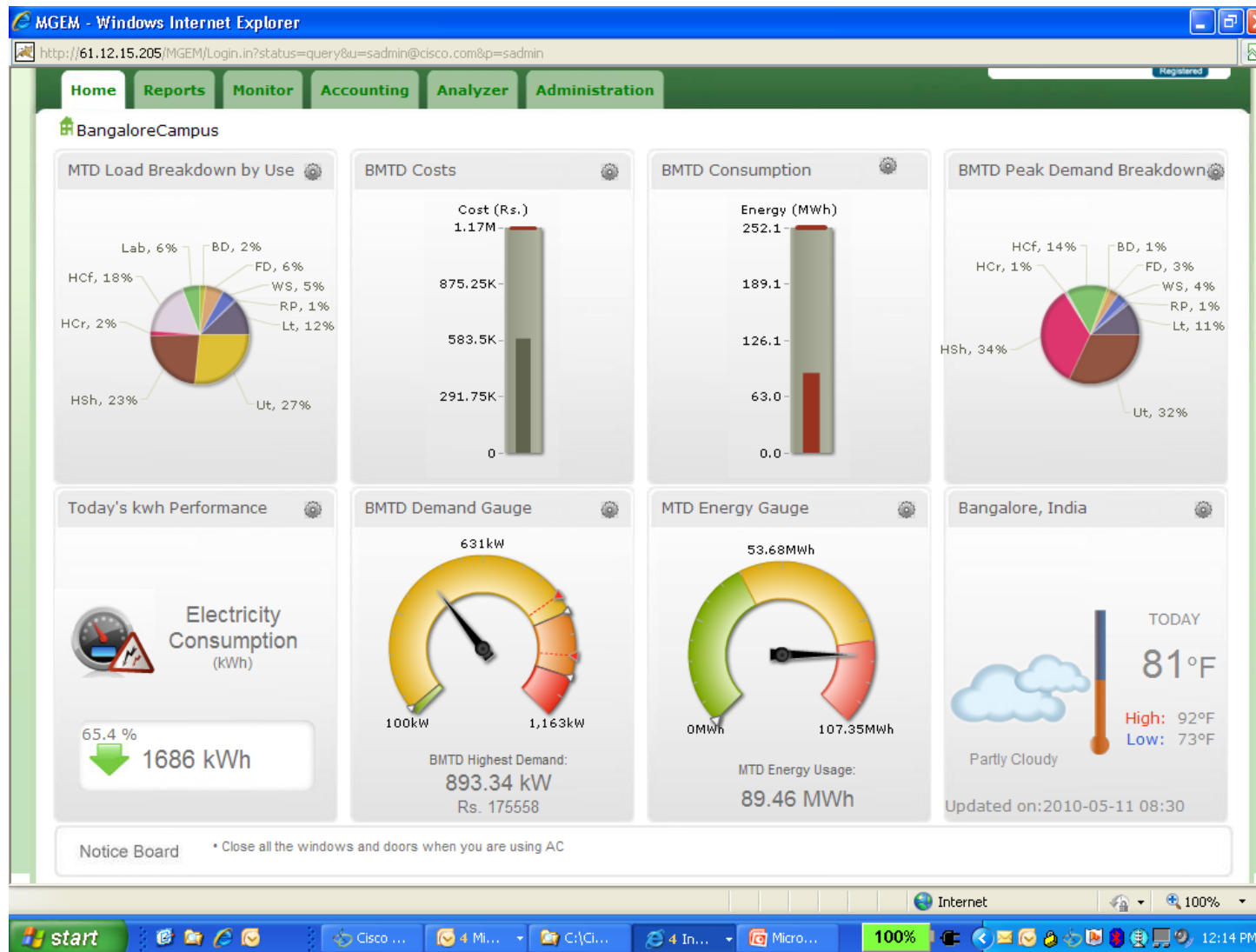
Još jeedan primjer cloud computing sustava za upravljanje energetsom učinkovitošću



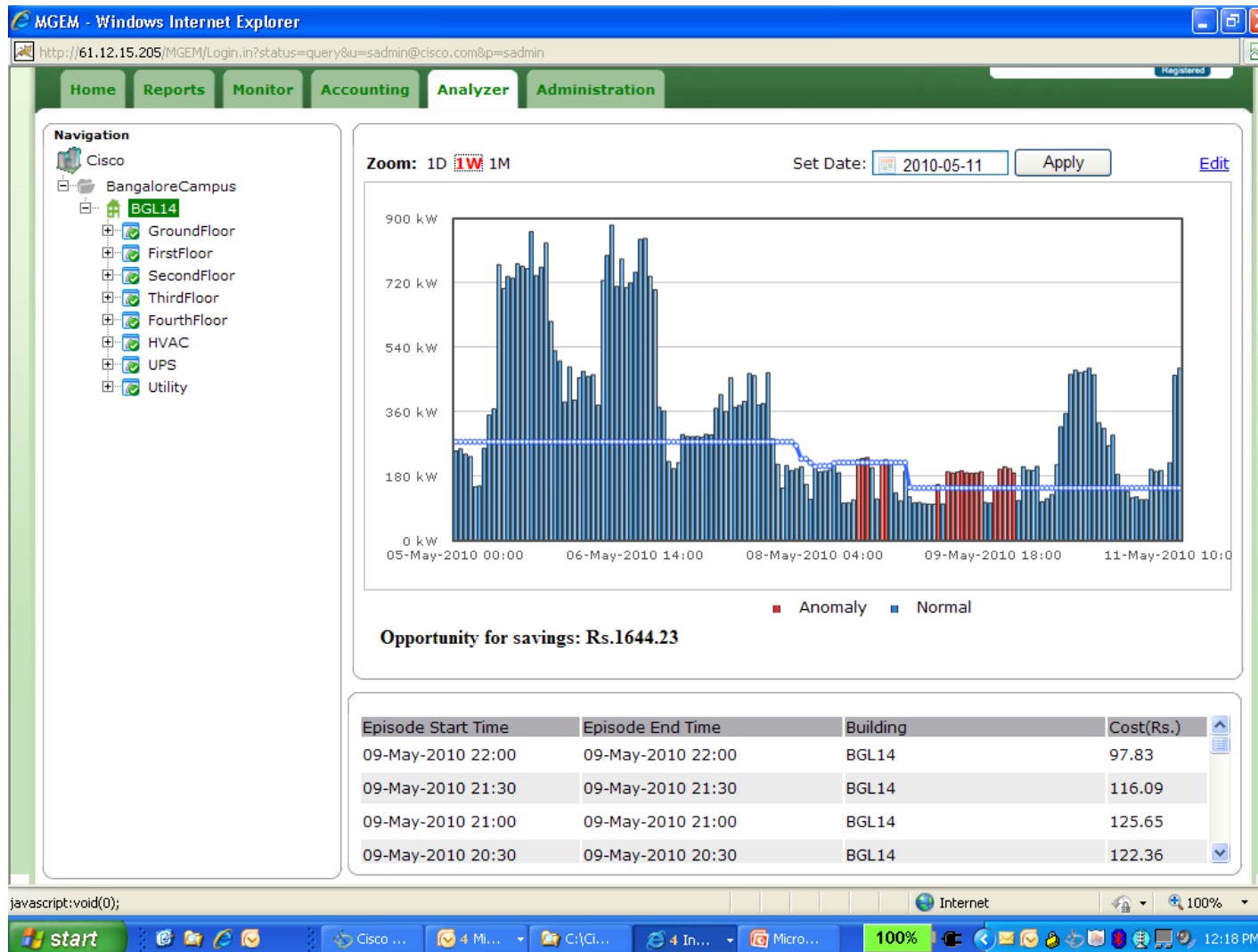
Još jedan primjer koji je primjenjen u Cisco uredu u Bangaloreu



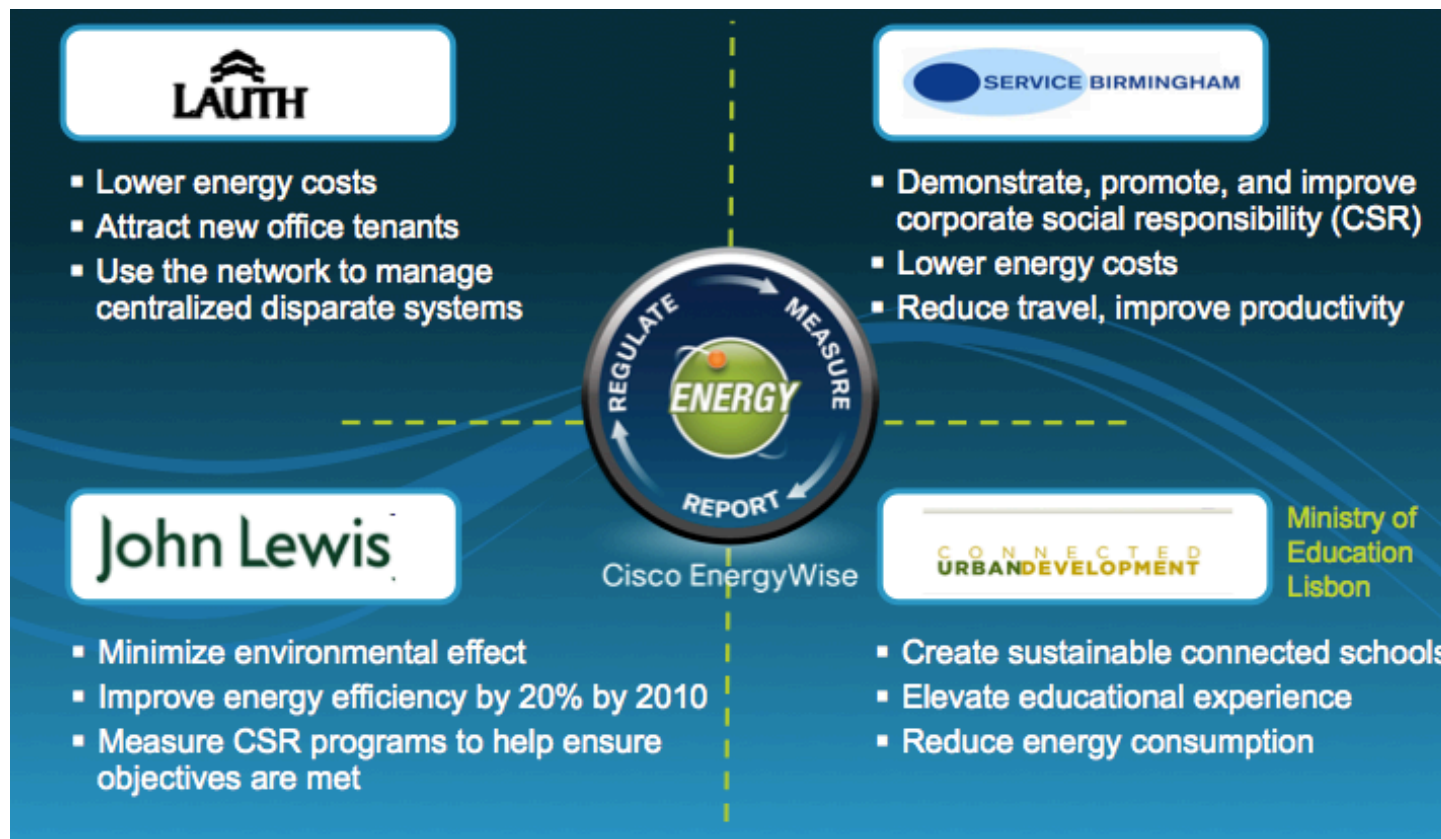
Cisco zgrada broj 14 u Bangaloreu



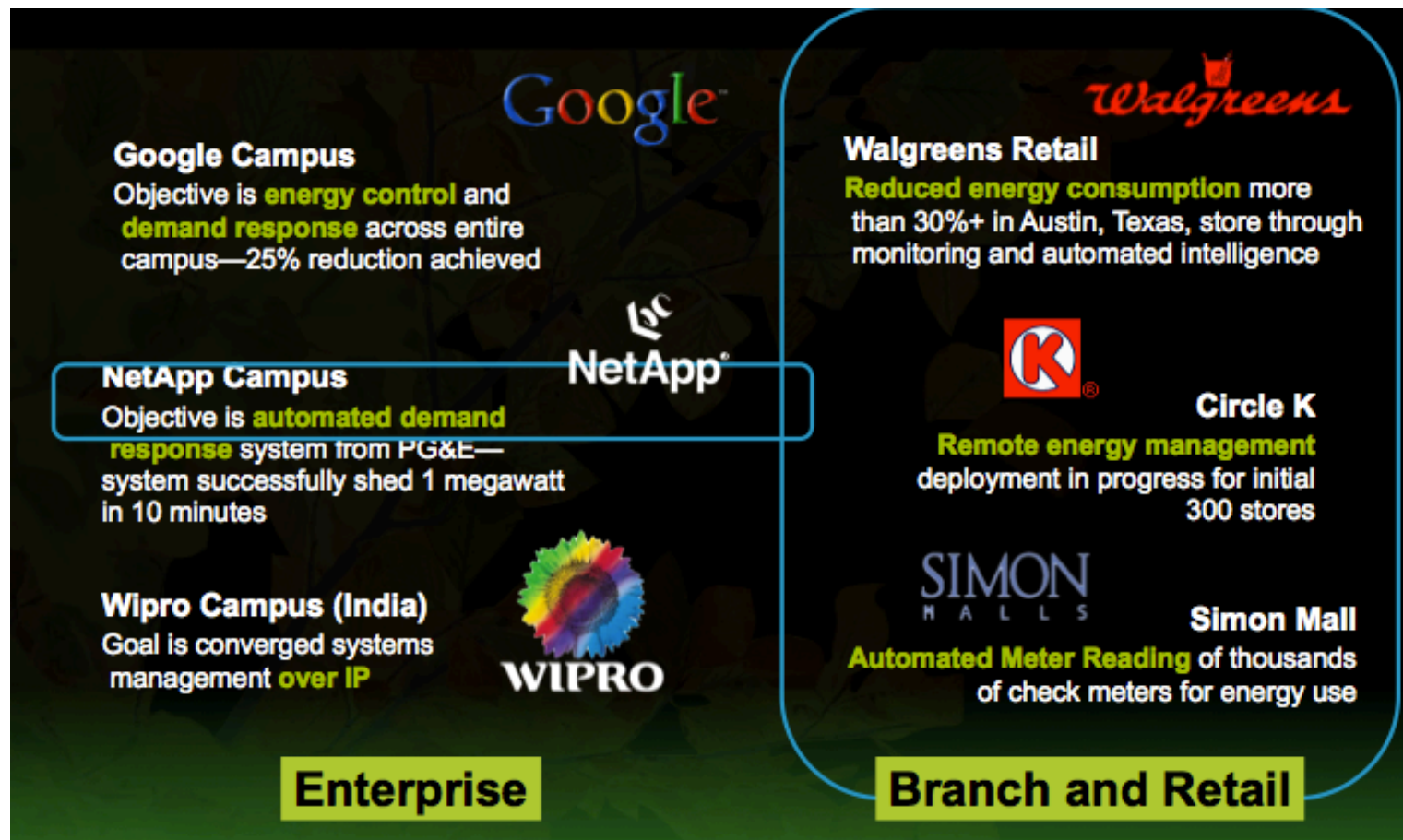
Cisco zgrada 14 u Bangaloreu



Tko koristi EW




Tko koristi mediator



The infographic is set against a dark background with a faint leaf pattern. It is divided into two main sections: 'Enterprise' on the left and 'Branch and Retail' on the right, each highlighted with a light green box at the bottom. The 'Enterprise' section includes logos for Google, NetApp, and Wipro. The 'Branch and Retail' section includes logos for Walgreens, Circle K, and Simon Malls. A blue rounded rectangle encloses the Walgreens, Circle K, and Simon Malls content. A blue line connects the NetApp logo to the 'Enterprise' label.


Google Campus

Objective is **energy control** and **demand response** across entire campus—25% reduction achieved




NetApp Campus

Objective is **automated demand response** system from PG&E—system successfully shed 1 megawatt in 10 minutes



Wipro Campus (India)


Goal is converged systems management **over IP**




Enterprise

Walgreens Retail


Reduced energy consumption more than 30%+ in Austin, Texas, store through monitoring and automated intelligence





Circle K

Remote energy management deployment in progress for initial 300 stores



Simon Mall

Automated Meter Reading of thousands of check meters for energy use

Branch and Retail

Kako izgleda budućnost IT1

