

# UPS efficiency



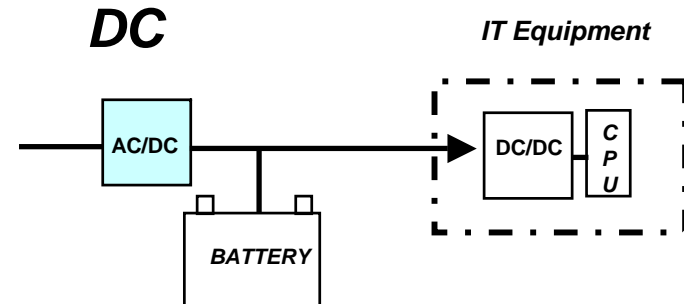
# 400V DC UPS vs. AC UPS

## HVDC UPS-solution

Battery Direct Feed

Control Parameter:

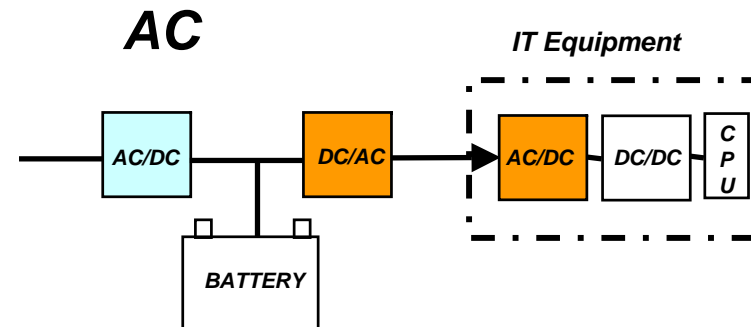
1. V



## Traditional UPS-solution

Control Parameters:

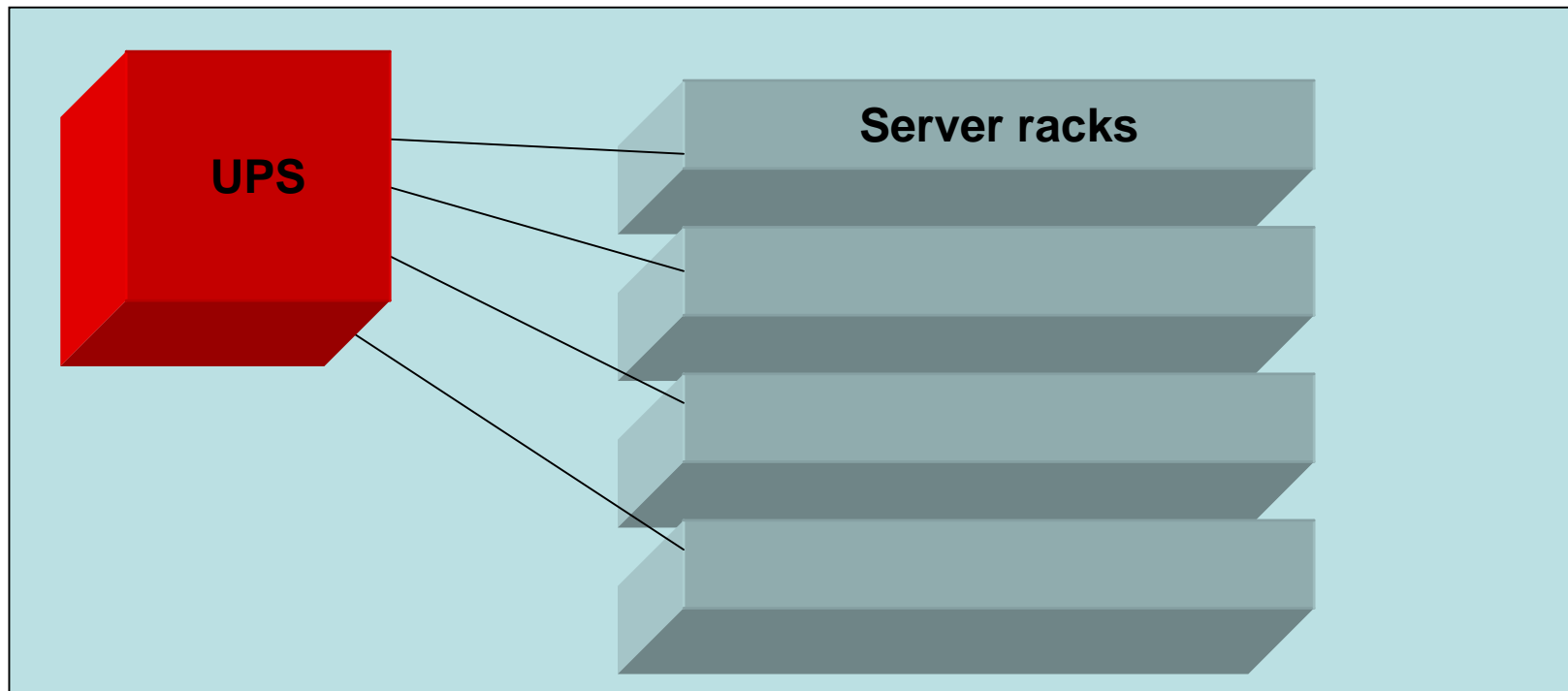
1. V
2. Hz
3. Phase
4. Waveform



- DC systems are much simpler - and safer.
- Fewer conversions means better efficiency!

# UPS installation

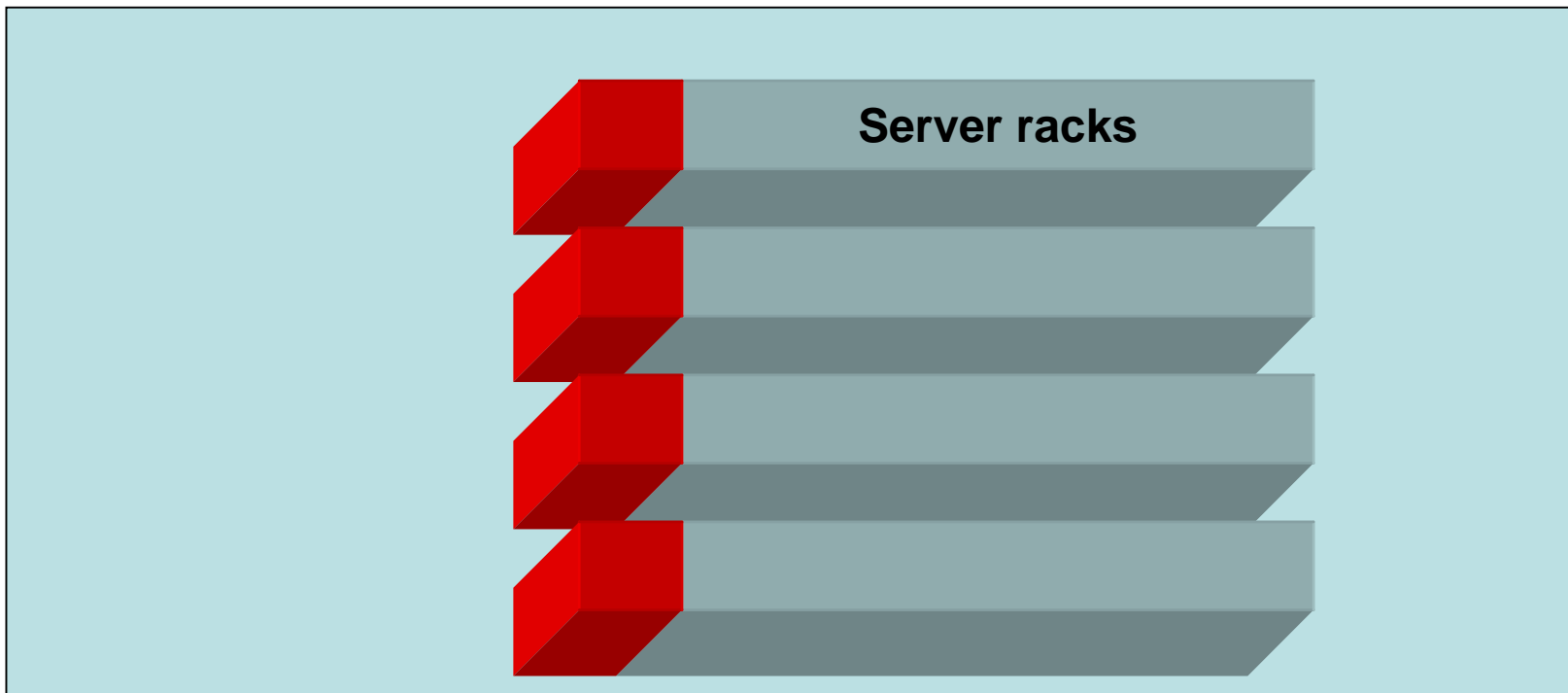
Typical design



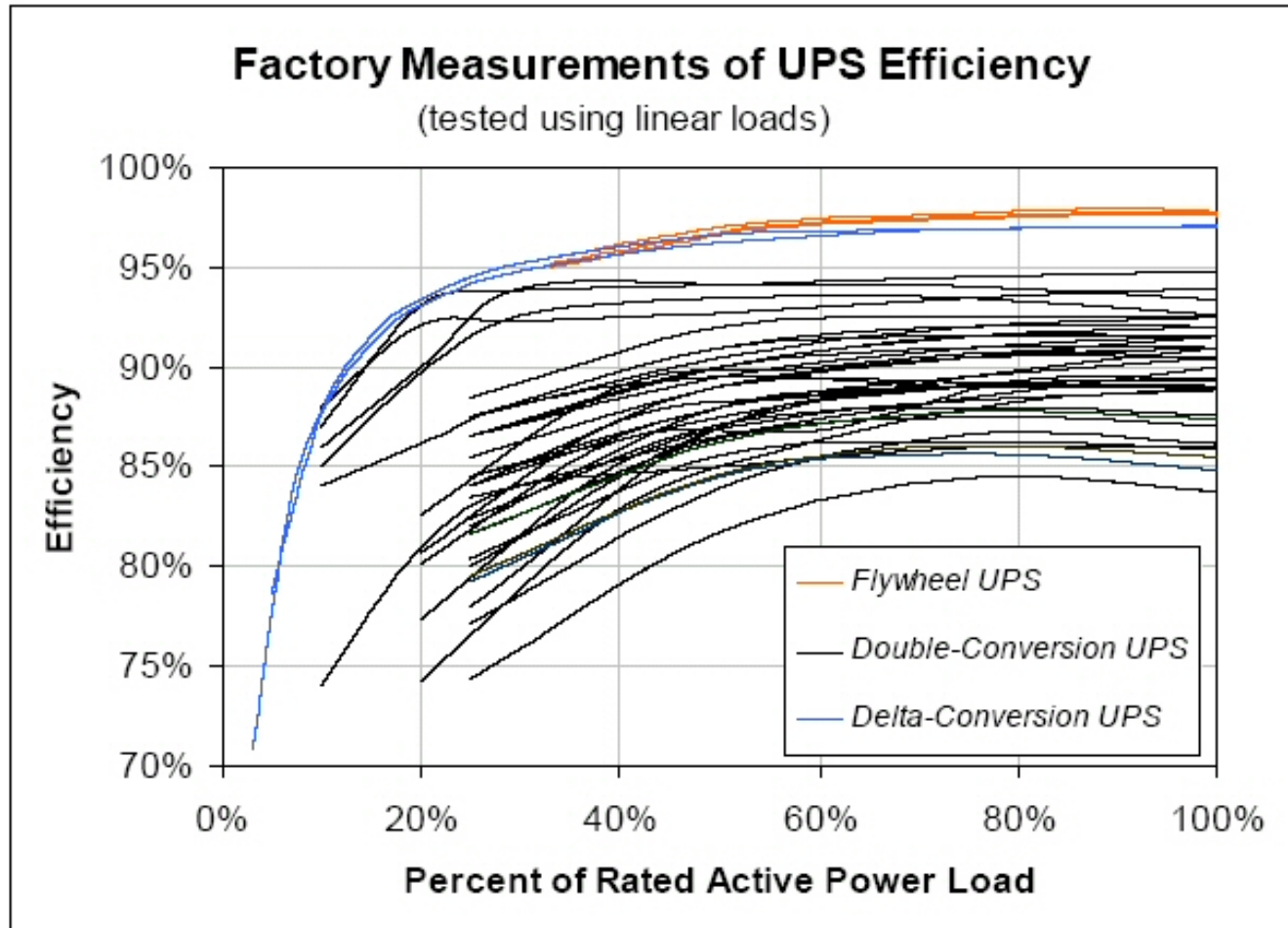
# UPS installation

## Flexible design

- backup times
- battery service etc.



# UPS Efficiency



Source: Lawrence Berkeley National Laboratory  
January 2007

# UPS efficiency

## Conclusion

- Starting with an oversized UPS will dramatically decrease energy efficiency because energy efficiency is dependant of the actual load connected to the UPS and not the “ideal load” figures often presented by the manufacturer.
- Energy efficiency figures as low as 75% are not uncommon.
- A modern UPS must be modular and flexible in order to give the best possible energy efficiency figures.
- A DC based UPS can have **98%** energy efficiency, saving money and CO2!



# Thank you for your interest!

(More information can be found at [www.netpower.se](http://www.netpower.se))

