



# The Contemporary and Future Applicability of Tape

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# Contemporary & Future Applicability of Tape

- SESSION: Whirlwind tour of thoughts, research...and some technology passion!
- TAPE *is* relevant to:
  - Contemporary data management
  - Clouds (of all sorts)
  - Reliability, searchability...desirability!?
  - Solid state storage
  - Big data and analytics
  - ILM (shh...) and tiering

# The Enterprise Strategy Group

ESG is an IT research, analysis and strategy company

ESG is counted on for straight talk as  
the **Trusted Advisor** for:

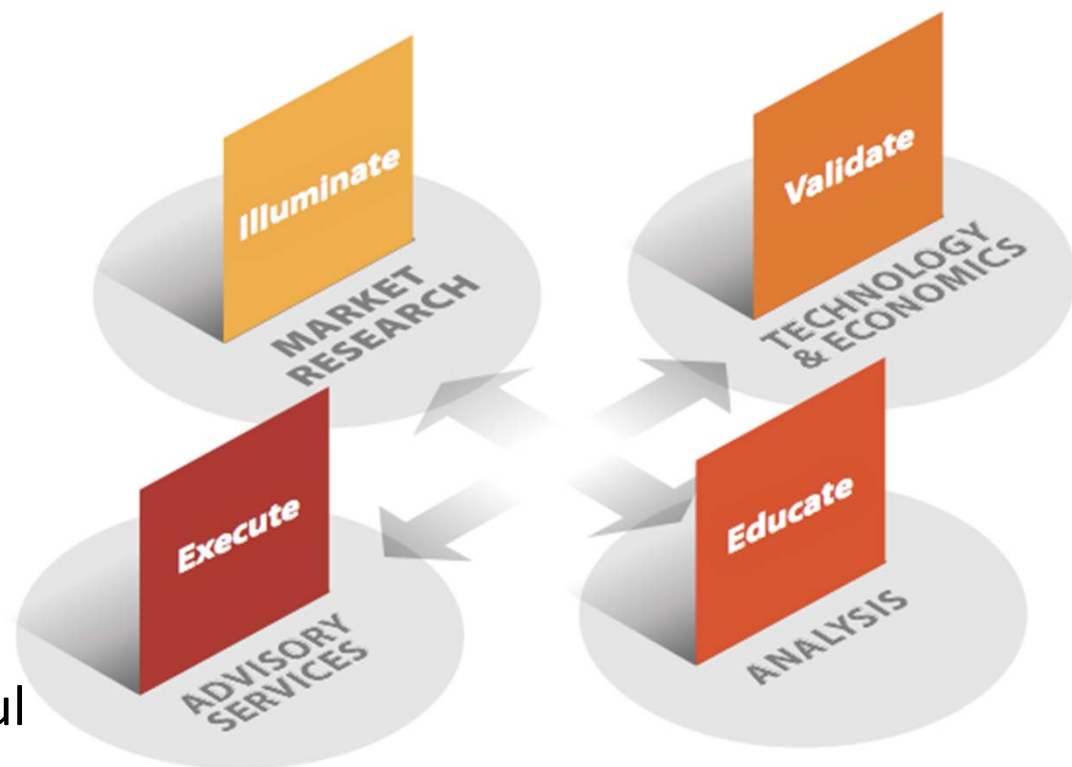
Technology Companies

IT Professionals

The Media

Investment Professionals

ESG is **uniquely staffed** with successful professionals who possess proven track records and experience.



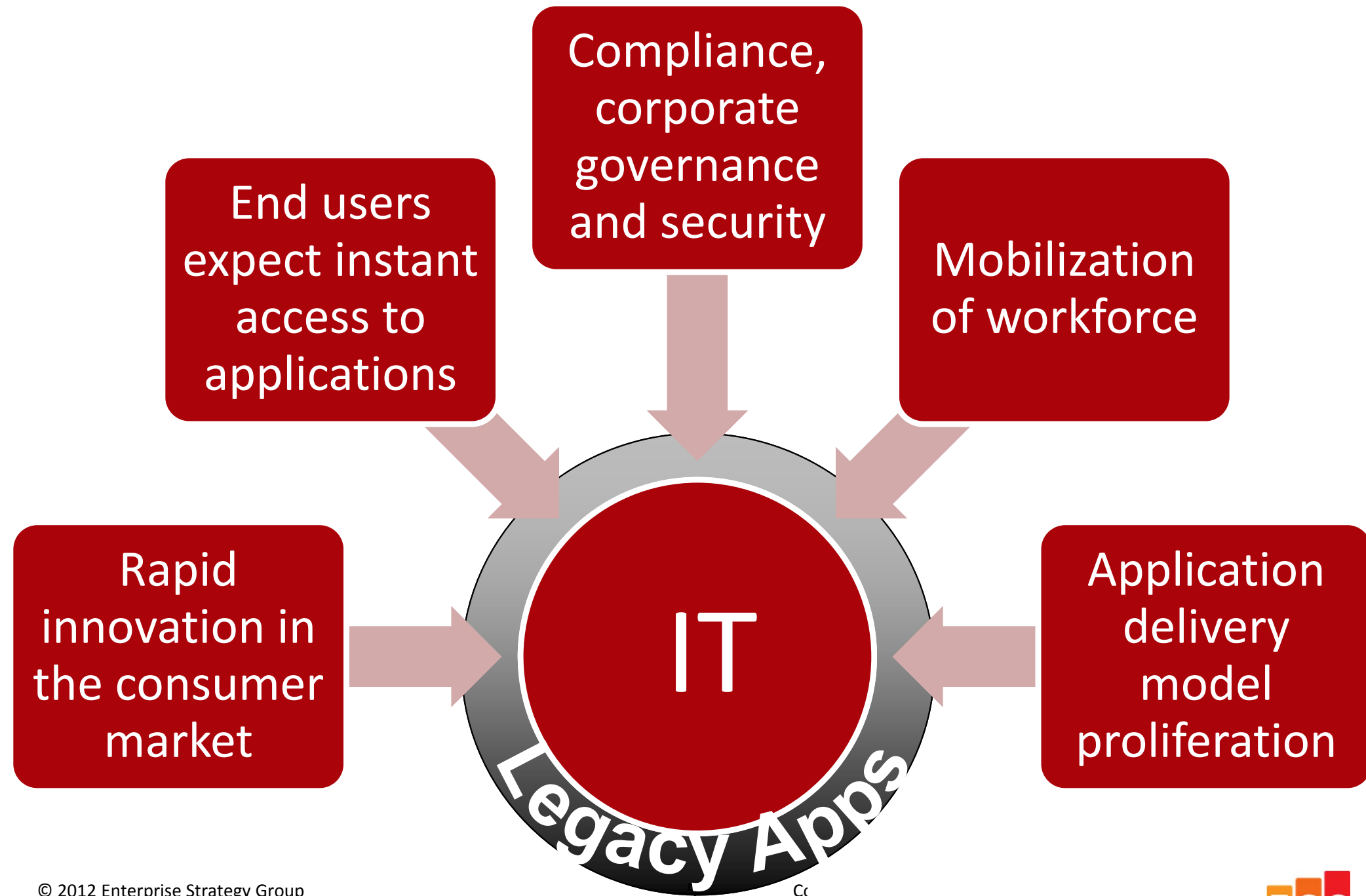
# Drinking the Kool Aid?



and



# IT Professionals Are Overwhelmed



# No Place For Tape?



**THE INDUSTRY**

**USERS**



# The Logical Applicability of Tape

End users  
expect instant

Compliance,  
corporate  
governance  
and security

Mobilization

...and **GROWTH** (up plenty)

Rapid  
innovation in  
the consumer  
market



Application  
delivery  
model  
proliferation



# The Logical Applicability of Tape

End users  
expect instant

Compliance,  
corporate  
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and security

Mobilization

...and **GROWTH** (up plenty)  
& **BUDGETS** (not so much)

Rapid  
innovation in  
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Application  
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A Question For Users....(seriously!)

*Are you a good kisser?*



# Top 10 IT Priorities: 2011 vs. 2012

2011	2012
1. Increase use of server virtualization	1. Improve data backup and recovery
2. Manage data growth	2. Increase use of server virtualization
3. Information security initiatives	3. Major application deployments or upgrades
4. Major application deployments or upgrades	4. Manage data growth
5. Improve data backup and recovery	5. Information security initiatives
6. Desktop virtualization	6. Business continuity / disaster recovery programs
7. Data center consolidation	7. Data center consolidation
8. Business continuity / disaster recovery programs	8. Desktop virtualization
9. PC refresh	9. Mobile workforce enablement
10. Regulatory compliance initiatives	10. Deploying a private cloud infrastructure

# Top 10 IT Priorities: 2011 v. 2012: *Tape Relevance*

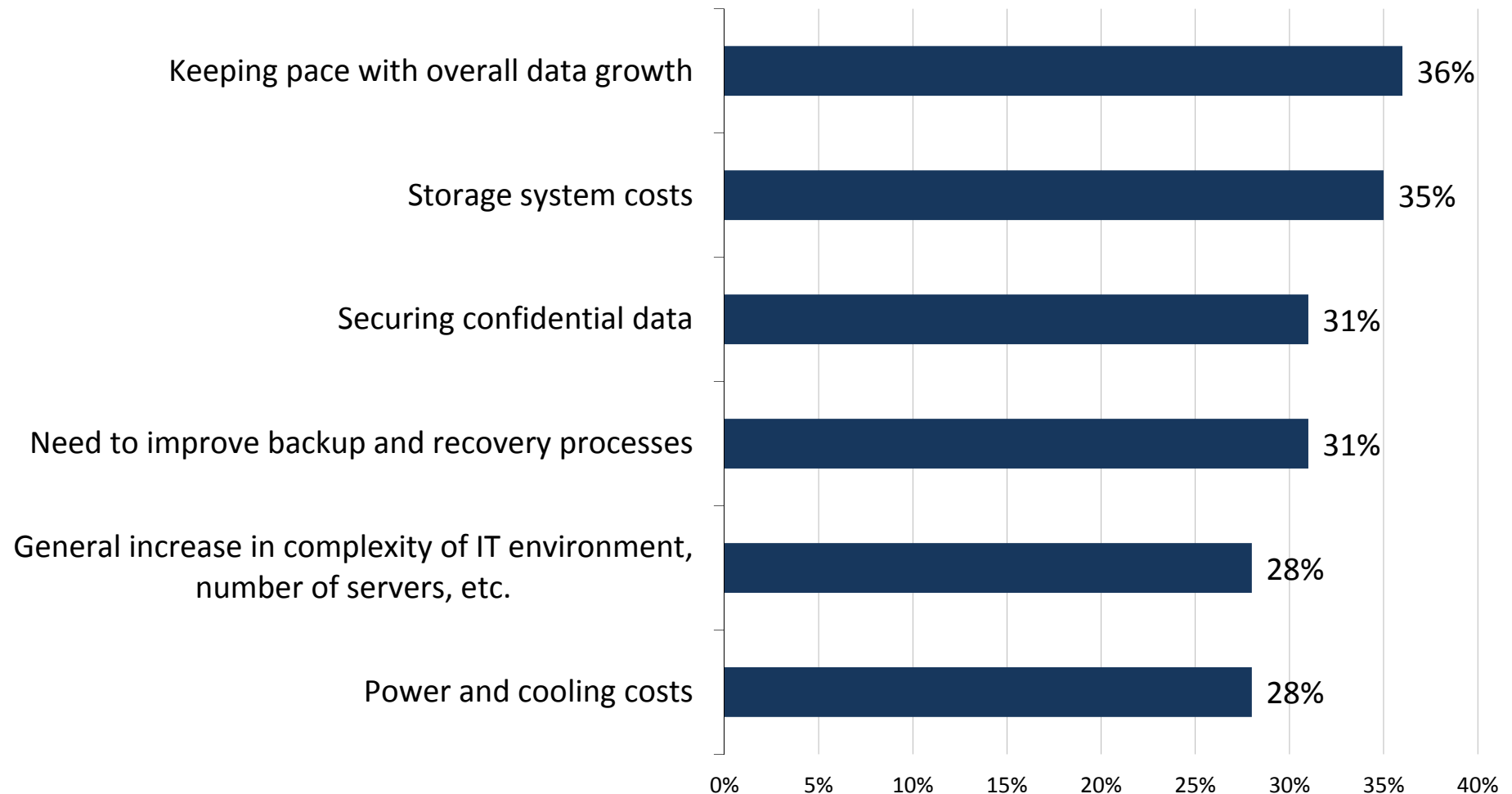
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# Broad Market Dynamics

- Macroeconomic climate continues to be difficult
  - IT spend has improved somewhat
- Rise of 'big data' creating confusion and opportunity
  - [Duh!] Big data is big and suits big data storage devices!
- Server (& desktop) virtualization wave is growing
  - Drives backup needs
- Clouds no longer just on the horizon
  - But now clearly moving in
- Massive, growing data-archive needs
  - Business common-sense and regulatory requirement
  - Varying data but all agree 5-6X next 4-5 years

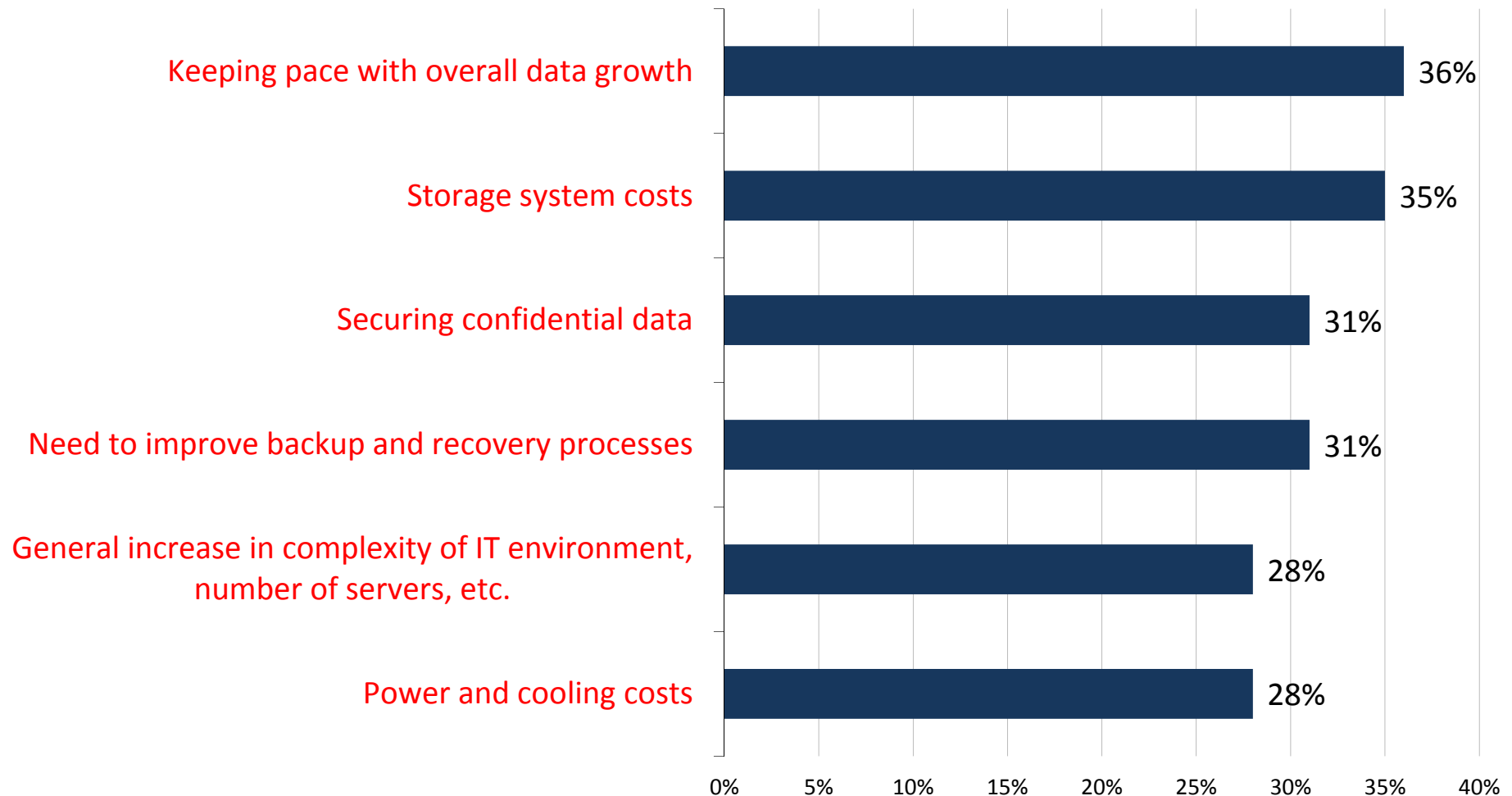
# Top Storage Challenges

**In general, what are your organization's greatest challenges with respect to its storage environment? (Percent of respondents, N=504, multiple responses accepted)**



# Top Storage Challenges = *Tape Applicability*

In general, what are your organization's greatest challenges with respect to its storage environment? (Percent of respondents, N=504, multiple responses accepted)



# Storage Trends Impacting Tape Applicability

- Turbulence = Opportunity
  - Users thoughtful, challenged, considering approaches
  - Backup to tape directly...only waning, far from gone
- Solid-state
  - 56 years after RAMAC, a paradigm shift?
- Tiering (the phoenix of ILM!)
  - Tape filing systems/access/'Active Archive'
- Major focus on economics
  - Cost remains a crucial storage issue across the board
  - 'Green-ness' is subsumed into overall economic play

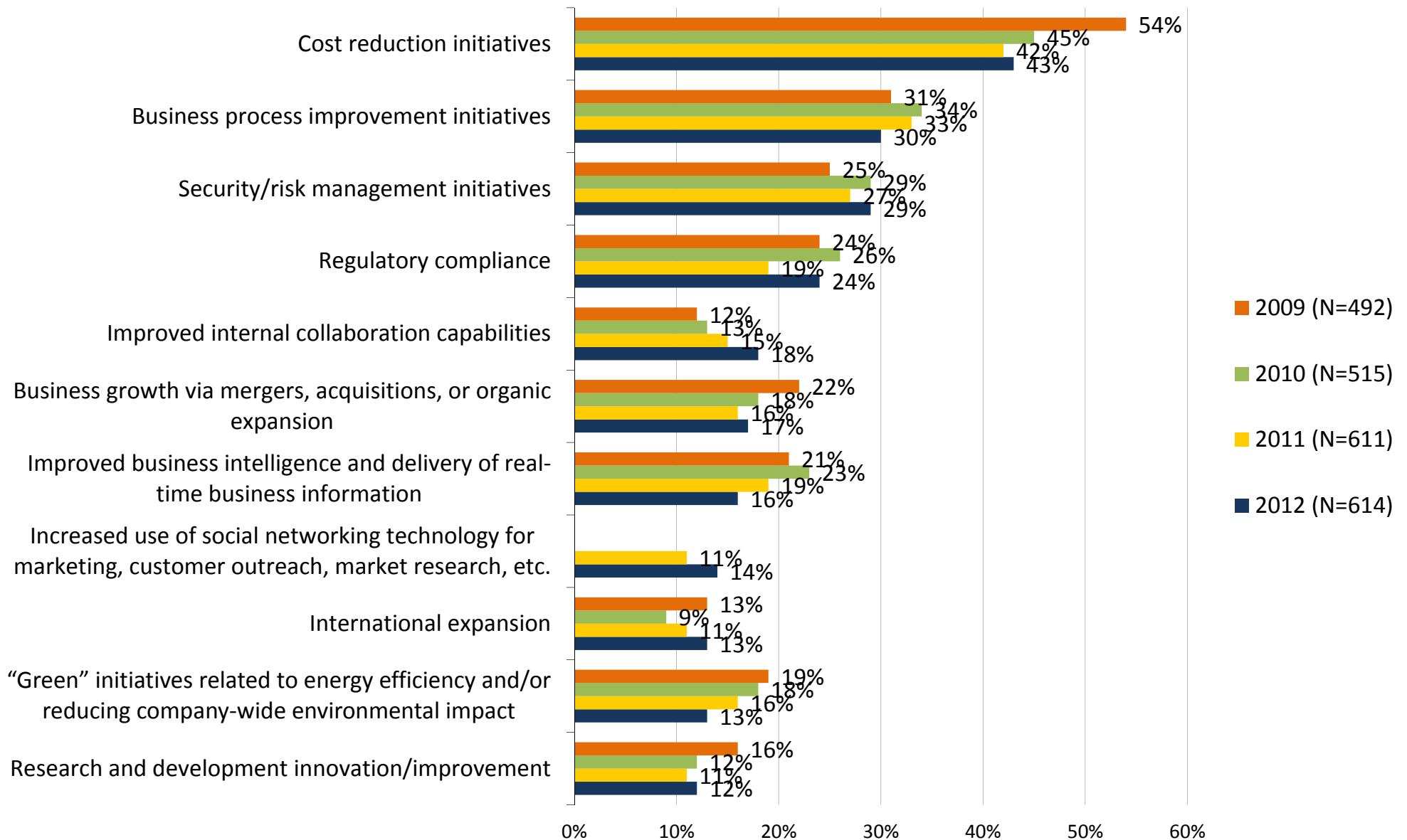


# Tape Market Then and Now

- The pro and con...and pro of tape
- Changing uses for tape
  - Archive
  - Big Data
  - New Verticals (e.g. media & entertainment)
- Massive data and data retention growth...
- ...and a massive focus on economics
- ...and a *massive* focus on economics
- ...and a *MASSIVE* focus on economics

# Business Initiatives Impacting IT Spending

Business initiatives that will have the greatest impact on organization's IT spending decisions over the next 12-18 months, by year. (Percent of respondents, three responses accepted)



# Headlines From an ESG Study on TCO

- Compared VTLs and Physical tape
  - Various approaches of backup and DR
  - Focus on de-duplication and LTO-5 technologies
  - Attempts to cover a full range of *economic* inputs
  - White Paper includes all assumptions
- Bottom Line: LTO-5 (in tape libraries) has a lower TCO than de-duplicated disk
  - Excellent for long-term data protection and storage
  - Disk options ranged from 1.78 to 4.16 times more costly
    - Tape exhibits a lower cost per GB, OPEX and energy consumption

# Not Using Tape



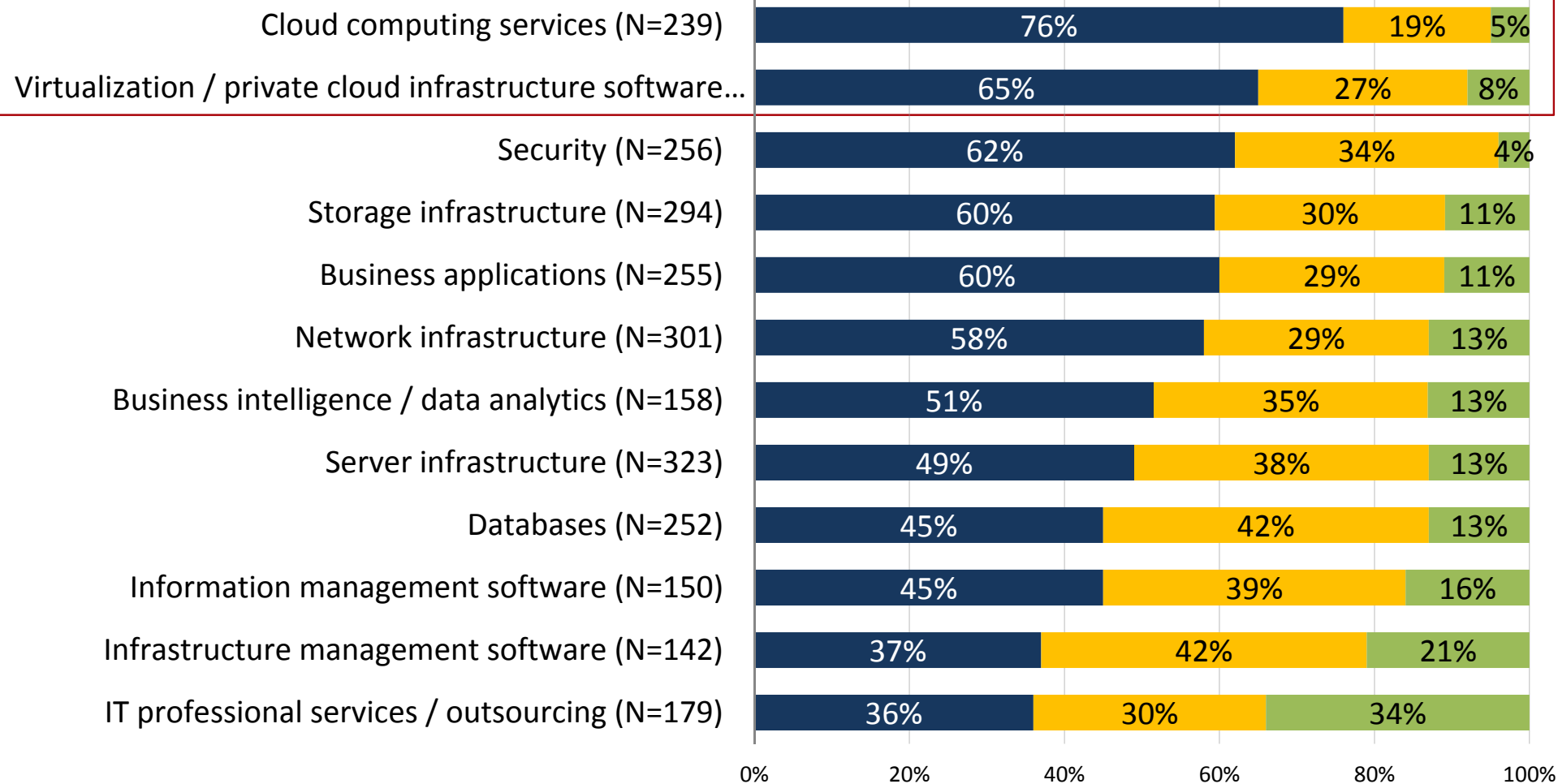
# Tape and the Cloud

- Tape 'old' and not 'cool'? (but Google's 40k mailbox admission)
- Cloud is merely IT – just consumed differently
  - Tape at least as relevant: replace TCO with ROI
  - 60% of users expect 20% of data in cloud in 3 years
- Why tape in the cloud?
  - Opex and Capex, longevity etc
  - Verifiable, searchable, JIT-scalable
  - Better than disk:
    - Spinning replicas can replicate errors
    - Security via sheer physics, multi-tenancy, encryption
    - Portability (some disk providers emulating)
    - Sheer scale (for immense archives etc)

# 2011-12 Spending Change In Specific Technologies

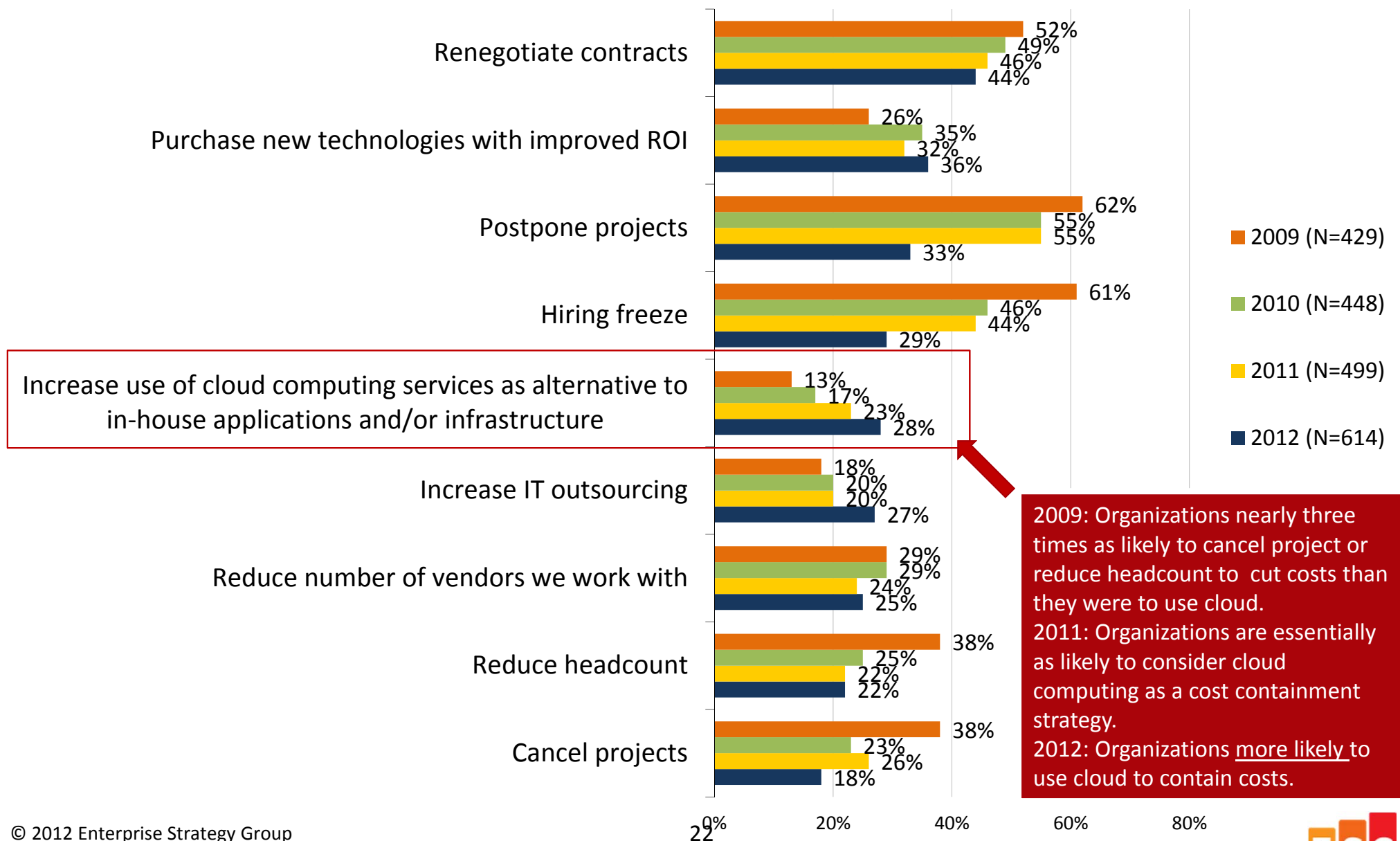
To the best of your knowledge, to what extent will your organization's 2012 IT spending for each technology listed below change relative to 2011? (Percent of respondents)

■ 2012 spending will increase ■ 2012 spending will stay flat ■ 2012 spending will decrease



# Cloud Computing As A Cost Reduction Strategy

IT cost reduction or cost containment strategies, by year. (Percent of respondents, multiple responses accepted)

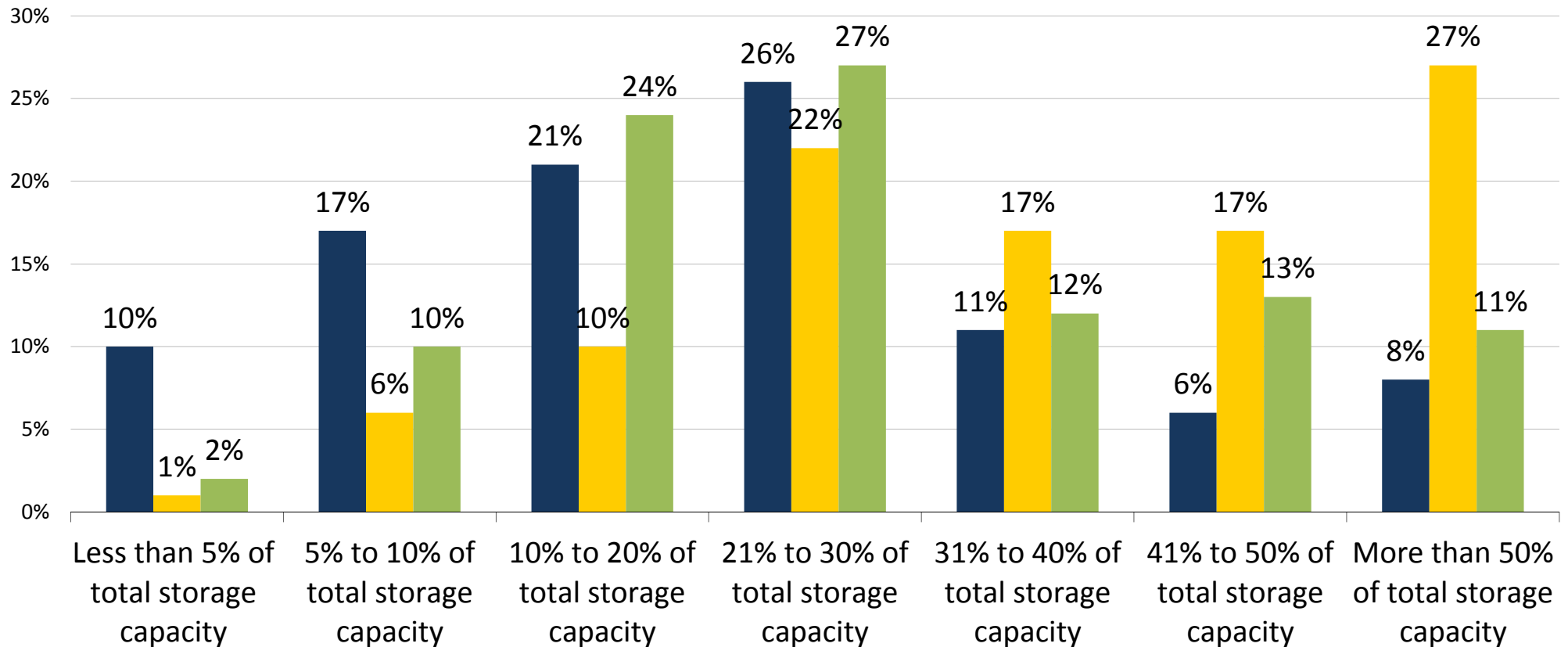




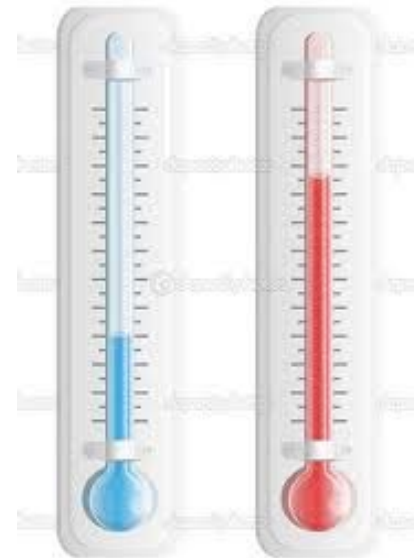
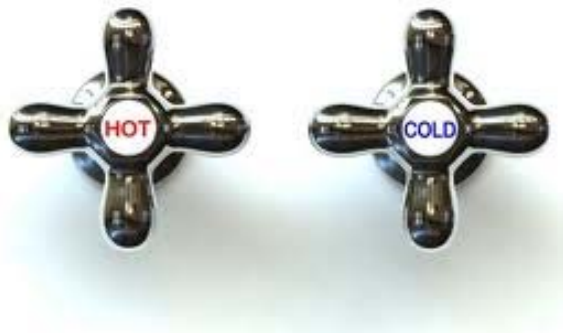
# Storage Capacity Stored On Cloud Infrastructure

**Approximately what percentage of your organization's total storage capacity would you estimate to be stored in the cloud? How do you expect this to change over the next 36 months? (Percent of respondents, N=96)**

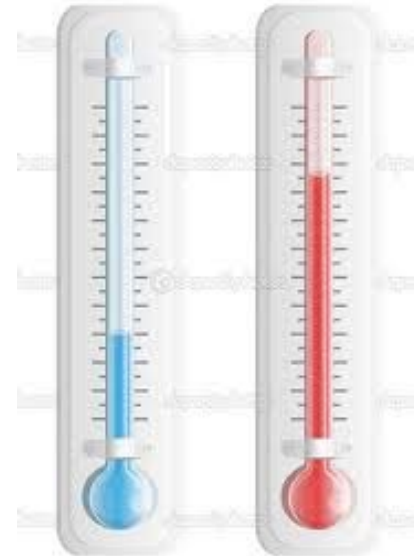
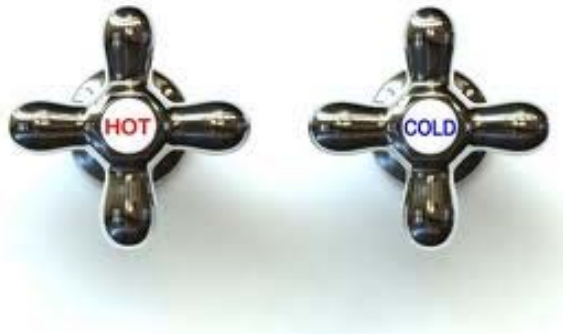
- Estimated percent of total storage capacity that is stored in the cloud today
- Estimated percent of total storage capacity that will be stored in the cloud 36 months from now
- Estimated percent of total storage capacity that will be stored in the cloud 36 months from now (planned cloud storage adopters)



# Tape and Solid-state = BFF!?



# Tape and Big Data/Analytics = A Perfect Match!?



# But...Tape Is Old, Dusty, Awkward & Unreliable!

- Three straightforward concerns/perceptions of many IT users regarding tape:
  - 1) Data is hard to find...
  - 2) If I find it, can I read it?
  - 3) General poor reliability of tape hardware and media



# Old, Dusty, Awkward & Unreliable....*Not!*

- Addressing the 3 negative perceptions
  - Finding data? - LTFS / tiering file systems
  - Data OK over lifetime? – Data analytics (EDLM, MLM, others)
  - Reliability? – Raw BER reliability > disk by 1-3 orders of magnitude
- Accentuate the positive
  - Inexpensive...vital for security...green...future technical 'delta' to disk is positive (35TB demo)...portable...longevity...etc

# Bumper Sticker Summary

- Guess what?
  - Tape isn't dead!
  - Perception isn't reality
- Use cases:
  - Archive
  - Armageddon
- Tape is also well suited for 'what's next' in IT



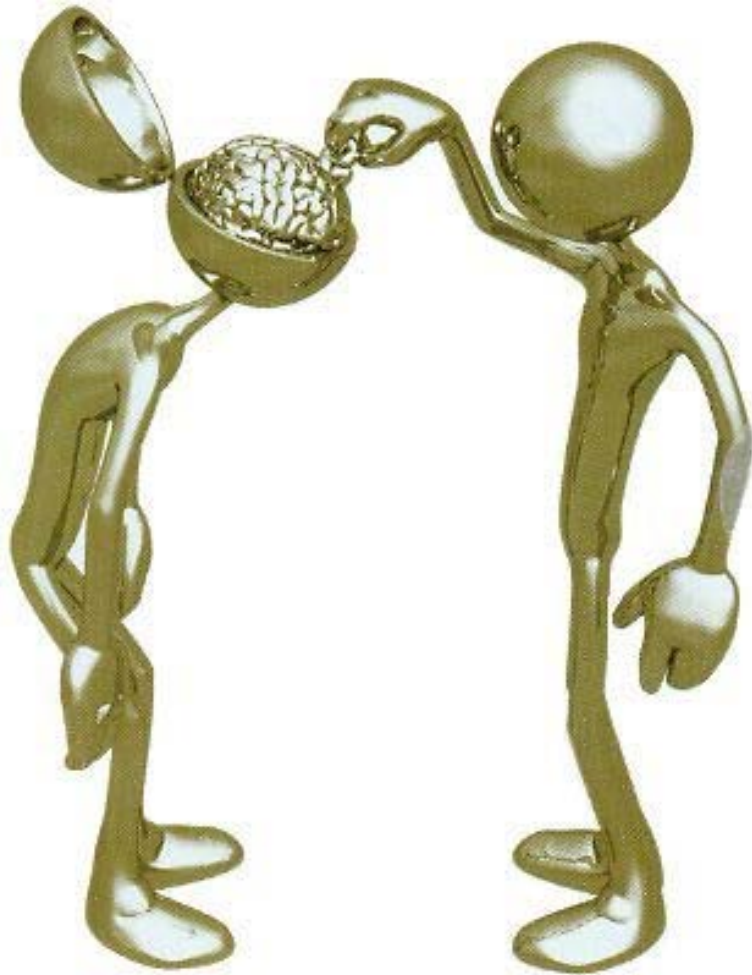
# The Most Logical of Unlikely Bedfellows

- TAPE is relevant to:
  - Contemporary data management
  - Cloud
  - Reliability, searchability....desirability!?
  - Solid state storage
  - Big data and analytics
  - ILM and tiering

*Yeah, but.....*



# BUT...Many Minds Must Be Changed!



*“Faced with the choice of changing one’s mind and proving that there is no need to do so, almost everybody gets busy on the proof”*

J K Galbraith

# 'Reassuringly Expensive'



# 'Have You Forgotten How Good They Taste?'



# Stella, Cornflakes & Contemporary Tape

- Brilliantly simple
- Great value / better than you remember
- Everyone needs top quality / the basics
- What's changed with tape?
  - None of the general principles or value
  - *Plenty* of specifics
    - Media, drives, robotics, interfaces, and the world/use-cases

# ‘Secure Long-term Online Workloads’

- Move tape usage from apologetic to aspirational!
  - ‘Tape Pride’?!
- Dedupe/Data Domain was really *only* about speed – to get backup done in time – and was not really anti-tape per se - but industry and perceptions allowed it to be negative!
- Be assertive
  - “Reassuringly SLOW!”...or reliable...or inexpensive...or...
  - “Looks ugly, tastes great” (Stella again)...
  - “Do you know how good/necessary/valuable tape is!?”

# Being Specific

**Why is a horse called a horse?**



# What You Imagine...





# Or....



# Having Tape Conversations That Are Real

**What is 'economic', 'secure', 'scalable', 'longevity', 'reliable', 'heterogeneous'....etc??**

***What is the question?***

***What is the need?***



# Closing Thoughts

- ‘Mirror Conversations’
  - Mindshare – modern, optimized/\$, tiering, secure
- T..A..P..E..Storage =
  - “The Answer for Persistently Economic” Storage
- Far more than ‘not dead yet’
  - Become assertive as an industry
    - Replace ‘why not?’ with ‘why spinning rust?’
  - Connect to/integrate with the new wave of storage
    - Solid-state, tiering software, cloud, big data, archive

# Contemporary and Future Value of Tape

- *Just because it ain't your grandparents' tape any more....doesn't mean that your grandchildren won't still be actively using it!*

*Thank You*

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