onepartner

America's first commercial Tier III datacenter.

PROXIMITY BIAS & COMMUTE EXPENSE: IMPACT ON DATACENTER SELECTION

> "It's not that we need new ideas, but we need to stop having old ideas."
>
> - Edwin Land,
> Inventor of the Polaroid Land Camera

IS the distance to your datacenter important to you?

For a majority of those seeking commercial datacenter space (e.g. "colocation") the datacenter's proximity *is the most* influential selection criteria.

Quality of service, reliability and even cost are *commonly* compromised in favor of proximity.

At a time when remote management tools are robust, inexpensive and ubiquitous – the obvious question is…WHY?

This paper presents a theory, with supporting data, and a paradigm-shift led by the first commercial datacenter in North America to receive a Tier III certification by The Uptime Institute.

Running the numbers

A 2007 Gallup Study indicates the average worker's commute is 45.6 miles. This is approximately the *target maximum* distance from a datacenter sought by colocation clients.

The United States Internal Revenue System (IRS) publishes approved mileage reimbursement rates. In 2011, the present mileage reimbursement rate is $0.51/mile.

InformationWeek reports (2011) that an average IT (staff) salary is $87,000/year. For these calculations, we use a 25% benefits cost, yielding an employee expense of $108,750 ($52.28/hour).

Table 1: Simple mileage reimbursement

Distance to datacenter/average daily commute	45.6 miles
2011 IRS Mileage reimbursement	$0.51/mile
Cost per trip (one way)	$23.26

Table 2: Staff productivity expense

Distance to datacenter/average daily commute	45.6 miles
Travel time (hours) @ 60 MPH	0.8 hours
Travel time (hours) @ 45 MPH	1.0 hours
Cost per trip @ 60 MPH	$39.74
Cost per trip @ 45 MPH	$52.98

Table 3: Mileage & productivity expense

Trip to datacenter @ 60 MPH	$62.99
Trip to datacenter @ 45 MPH	$76.24
Trip to datacenter @ rush hour/snow, etc	???

Assume they *come back*, multiply by 2x

Trip to datacenter @ 60 MPH	$125.98
Trip to datacenter @ 45 MPH	$152.47

The obvious assumption and probable error above is that travel between the office and datacenter *approaches* highway speeds at all times. Inclement weather, traffic and fuel stops along the way likely yield slower average speeds in most metropolitan areas.

Table 4: Trips to the datacenter/month & annual expense	@ 60 MPH	@ 45 MPH
5 Trips/week	$30,236	$36,594
2 Trips/week	$12,094	$14,637
1 Trip/week	$6,047	$7,319

Table 4 illustrates the combined expense (mileage reimbursement and productivity expense) of a single staff employee traveling to the datacenter with varying frequencies.

This is a good time for another quote.

> "Man is not a rational animal, he is a rationalizing animal."
>
> - Robert A. Heinlein,
> Acclaimed Father of Science Fiction

Rationalizations

"We don't reimburse employees for travel to the datacenter."
Most organizations reimburse employee travel to the datacenter. Failing to do so effects morale which can, in the long term, be more expensive than mileage.

"We can cut back on travel by accumulating tasks."
Possibly, but how will this impact productivity for the rest of the business?

"We can contract datacenter staff for hands-on support."
Yes. This is a lucrative service for datacenter providers and they will be anxious to assist. Hands-on service may cost $125-$200/hour with minimum allocation requirements.

Theory

High costs for hands-on support charged by datacenters drive colocation clients toward proximity-based selection - *commonly* sacrificing quality of service, reliability and colocation cost.

Paradigm-shift?

Could a datacenter remove proximity bias by providing *free* hands-on-support?

Timeline: Tier Certification standards & commercial datacenters

As evidence that one datacenter, even a small datacenter located in rural Virginia, can drive an industry, consider this timeline.

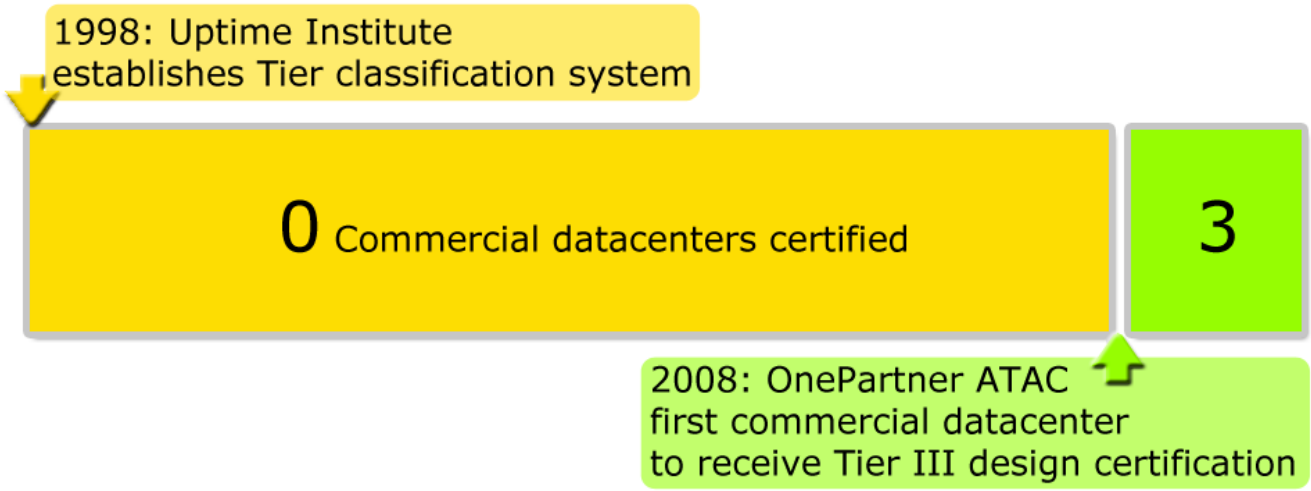

Figure 1: Adoption timeline for Tier classification

The Uptime Institute created the Tier classification system in 1998. The Tier system has become the recognized industry standard worldwide, and yet between 1998 and 2008 no commercial datacenter was certified (or published certification results).

In 2008, OnePartner became the first company in North America to certify the design of a commercial datacenter at a Tier III level – effectively raising the bar.

In 2010, two companies followed OnePartner's lead and certified commercial datacenters. More certifications are underway.

A small startup datacenter in rural Virginia initiatated industry change once and is in the process of doing so again.

Shifting the paradigm

Change does not occur overnight. Figure 2 illustrates Everett Rogers' Adoption Curve.

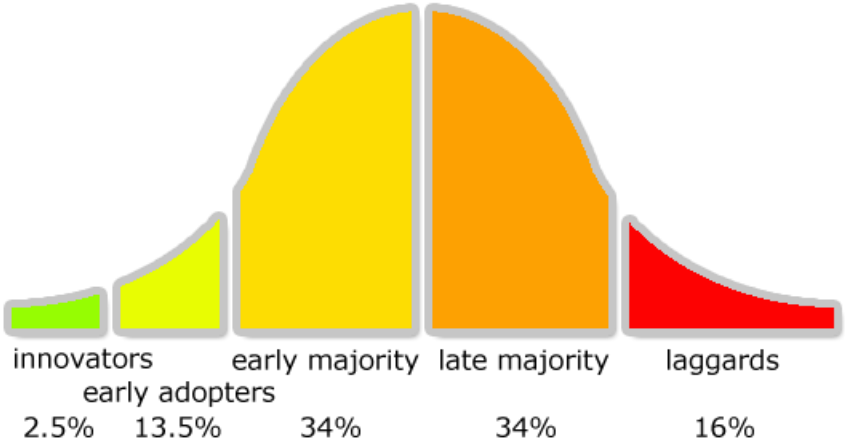

Figure 2: Roger's Adoption Curve

The majority of businesses in any industry are slow to adopt new concepts. New concepts must effectively connect with "innovators" and "early adopters" before the upswing of early majority adoption.

Distinguishing characteristics of "innovators" and "early adopters" are education, community leadership and risk-orientation. The innovators are engaged in industry communities and continually seek information. Documents such as this paper are, therefore, vital communications with and resources for innovators.

Transformation

OnePartner provides hands-on support at no additional cost for colocation clients.

Examples

An enterprise hosting client orders new hardware, drop-ships the hardware to OnePartner's ATAC datacenter, informs OnePartner's 24x7x365 NOC staff and provides instructions for racking. Once OnePartner's staff racks the equipment the client is notified and begins configuration via remote management tools. *Result: zero productivity loss and zero additional cost.*

A colocation client requires insertion of an installation DVD. A ticket is created and minutes later the media is loaded. *Result: zero productivity loss and zero additional cost.*

Removing cost from hands on support has widespread implications.

- Proximity bias is eliminated
- Quality of service, reliability and cost are elevated in selection process
- Commute expenses are reduced
- Response time is dramatically improved and independent of traffic/weather
- Staff morale improves
- Full value of remote management tools is realized
- The "bar" is raised for a reluctant industry

Conclusion

OnePartner's "10 Places You Don't Want A Datacenter" has been downloaded in over 130 countries. It presents site characteristics considered to be ideal for datacenter locations. Many established datacenters are located in less than ideal areas and benefit from proximity bias.

Proximity bias causes colocation clients to tolerate downtime, poor response time and excessive costs from nearby datacenters.

High hands-on support fees *encourage* proximity bias, creating a virtuous cycle for datacenter operators.

Organizations trapped by proximity bias pay more (services, travel costs and downtime) than those who leverage no-cost hands-on support and remote management systems.

If you're interested in breaking free of proximity bias and want your mission-critical infrastructure in North America's first Tier III datacenter, please contact us.

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On May 20, 2011 OnePartner celebrated 1,000 days of uninterrupted service (read more).