

It Was a Big Deal ...
But Apparently It's Not Anymore

George S. Ford
Chief Economist

- “We conduct [a] detailed analysis ... against the **backdrop**”
 - “the transaction would result in an increase in ... concentration”
 - “the transaction would result in the elimination of [a] disruptive competitive force”

FCC Staff Report, AT&T/T-Mobile Merger

“the estimates we present do not account for many potentially important additional factors that may affect pricing, including:

- (a) product repositioning;
- (b) market entry;
- (c) transaction –specific marginal cost reductions;
- (d) quality improvements;
- (e) exclusionary effects;
- (f) oligopoly interactions [other than] Bertrand-Nash;
- (g) price adjustments from ... non-merging firms.”

“The spectrum crunch is the single biggest threat to one of the most promising parts of our economy.”

Chairman Julius Genachowski

“If the U.S. does not address [spectrum exhaust, it] could mean higher prices, poor service quality, an inability for the U.S. to compete internationally, depressed demand and, ultimately, a drag on innovation.”

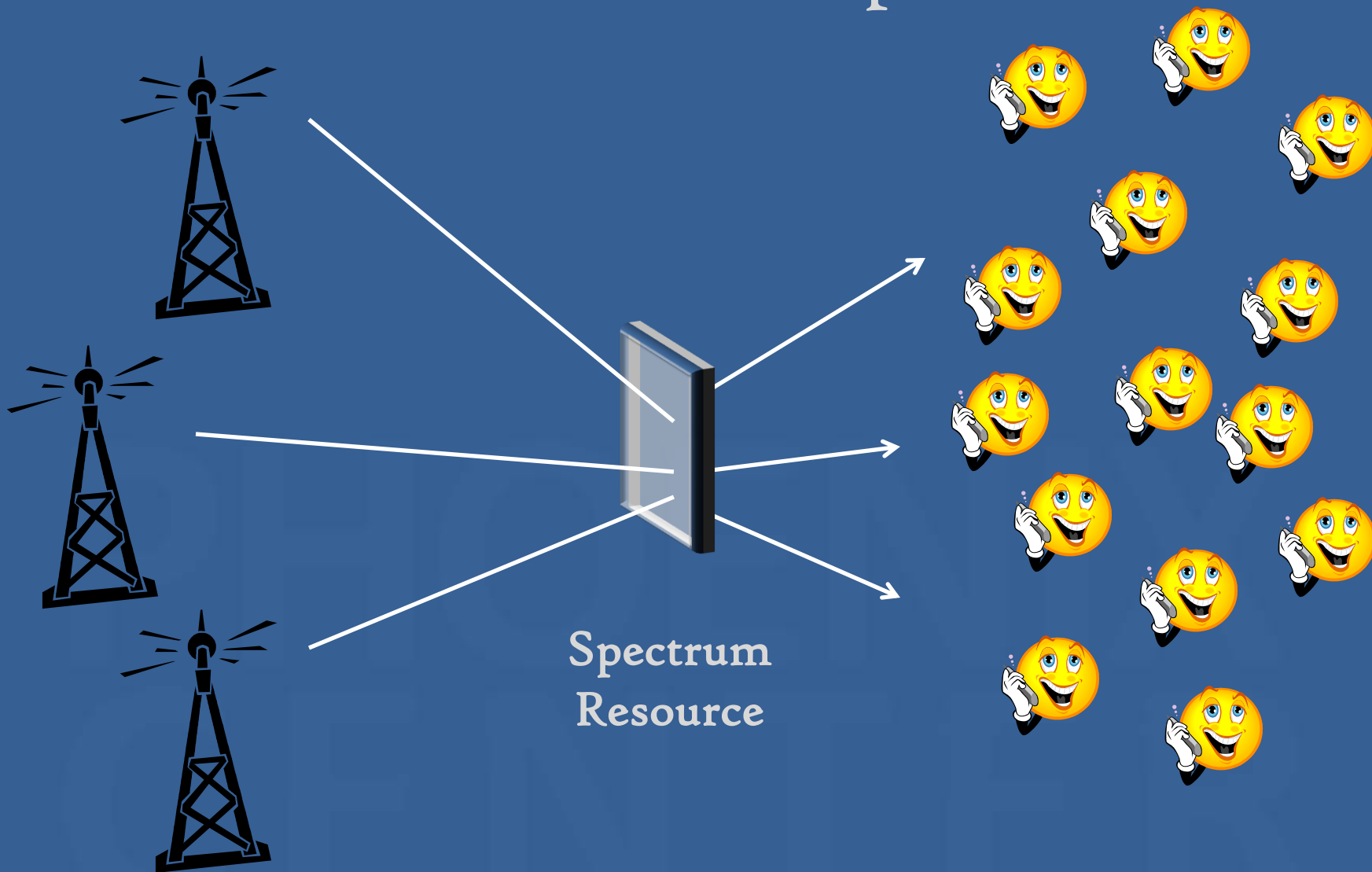
The National Broadband Plan

“Our review of this merger has had a clear focus: fostering a competitive market that drives innovation, promotes investment, encourages job creation, and protects consumers..”

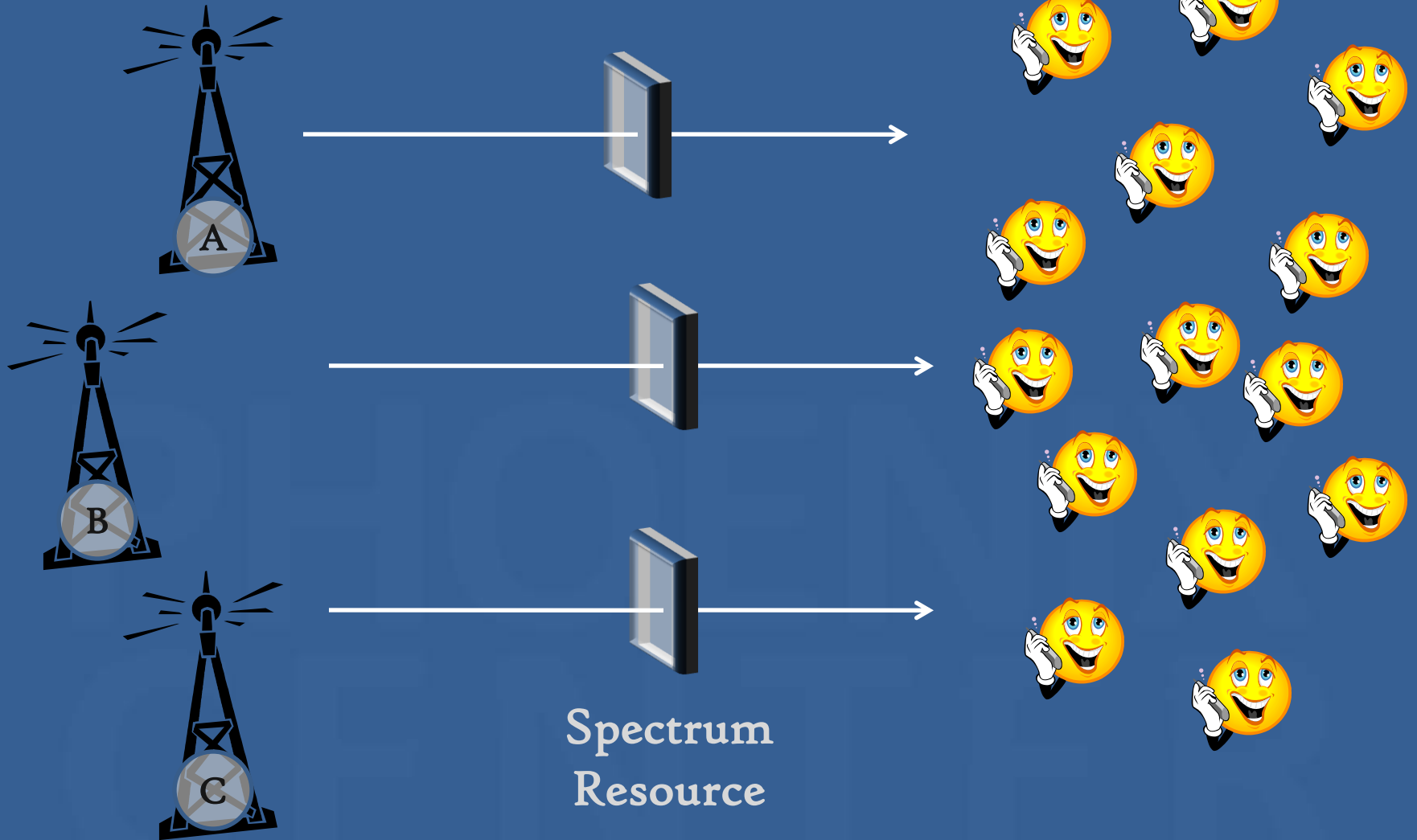
Chairman Julius Genachowski

Does a Spectrum Crunch Alter the
Standard Competitive Analysis?

Basic Setup



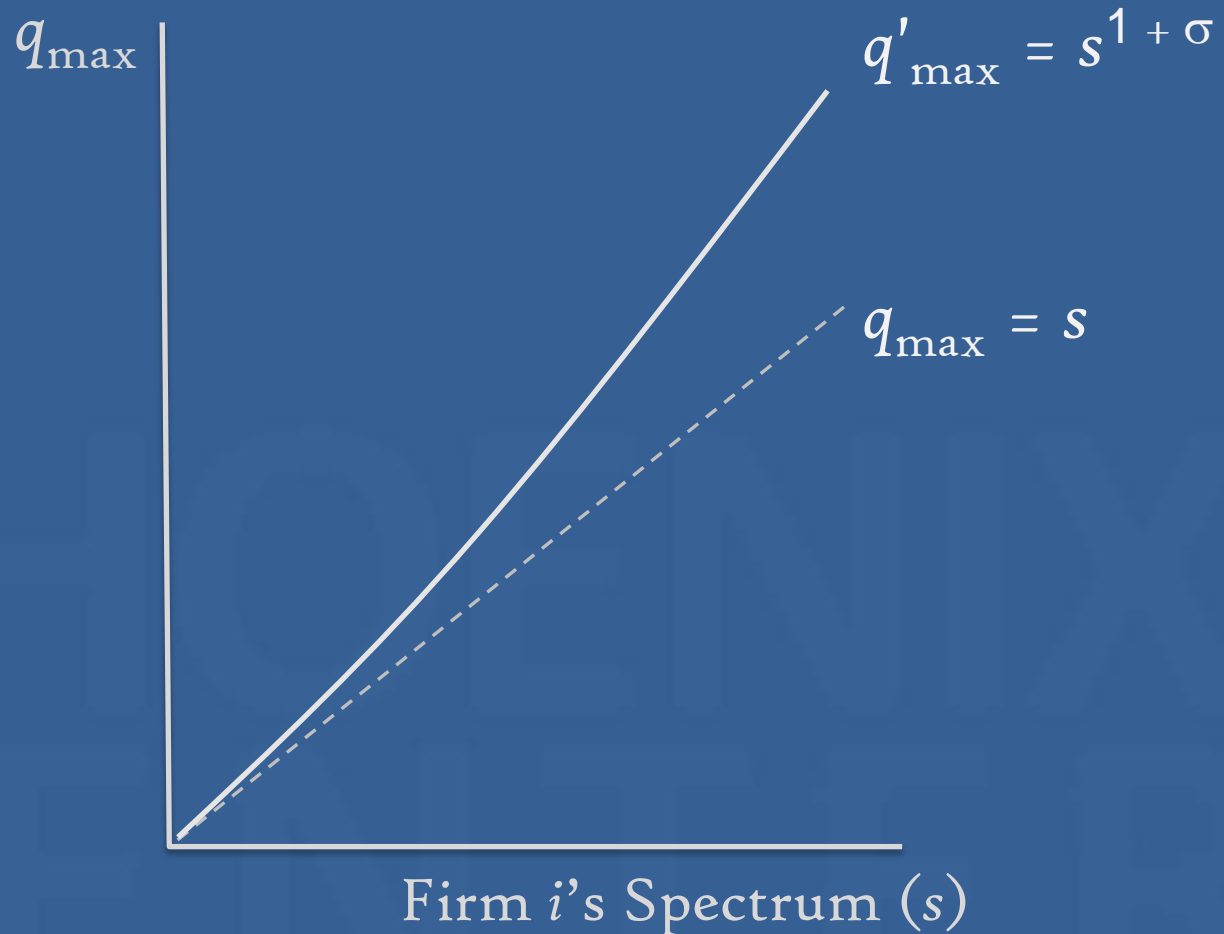
Basic Setup



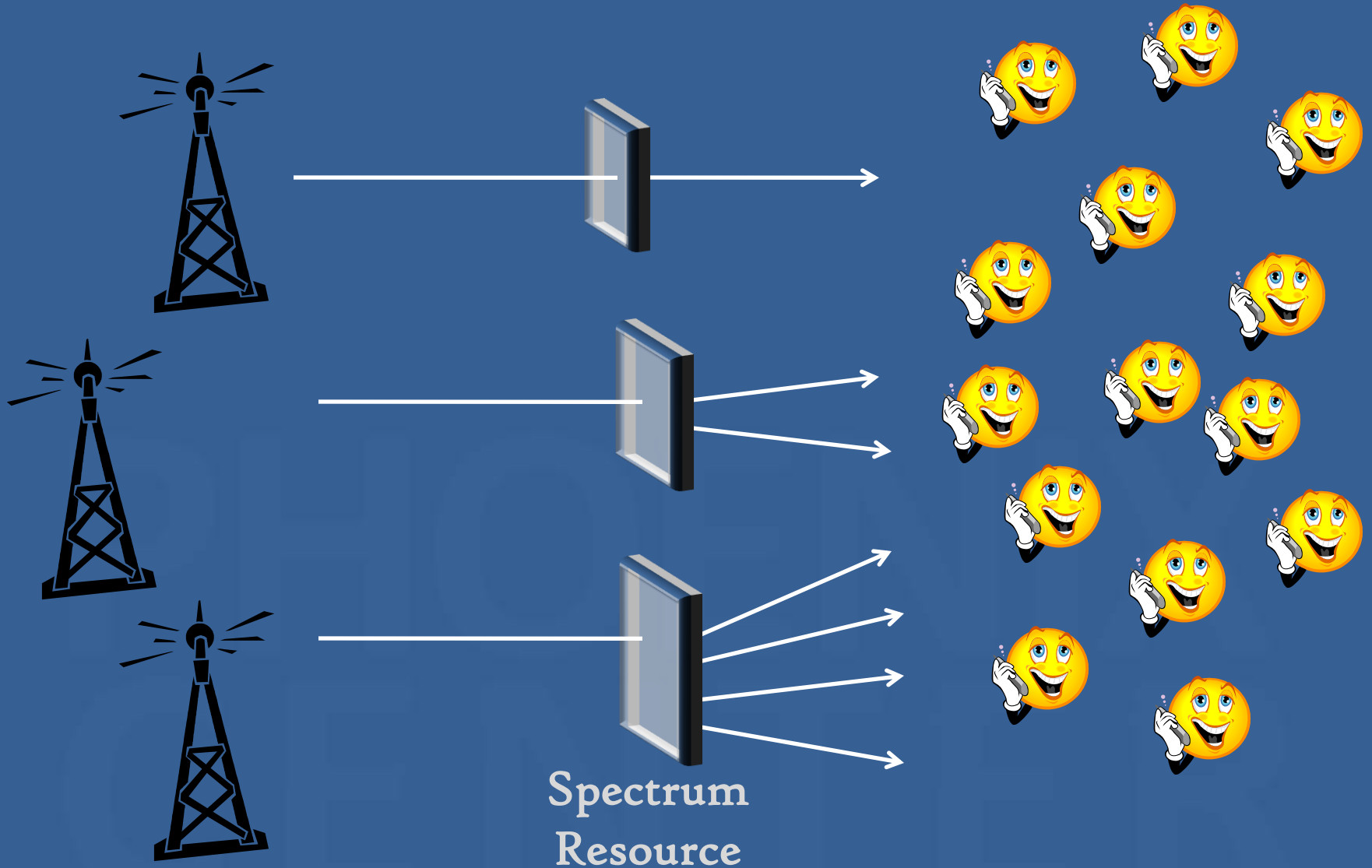
Addressing the Technology

- Throughput rises more than proportionately to the amount of Spectrum
 - Twice the spectrum leads to more than twice the capacity
 - Maximum output = $q_{\max} = s^{(1+\sigma)}$

Spectrum and Capacity



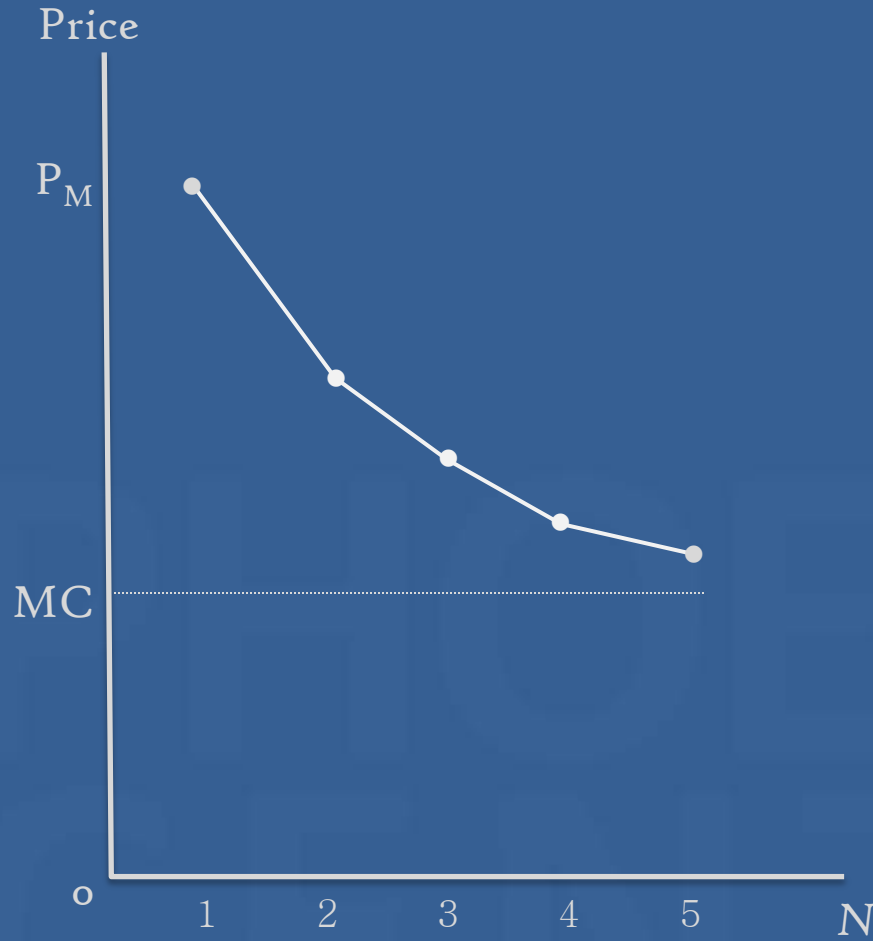
The Scale Effect



Competitive Interaction

- Cournot Competition
 - Prices falls as N increases
 - *We assume* the HHI is a meaningful measure of competitiveness
 - “exacerbate potential price increases”
(FCC Staff Report, AT&T/T-Mobile Merger)
 - “the market concentration approach is inspired by the ... Cournot oligopoly”
(Farrell and Shapiro 2010)

Cournot Competition: The Standard Policy View



$$Q = \left[\frac{N}{N+1} \right] Q_{\text{COMP}}$$

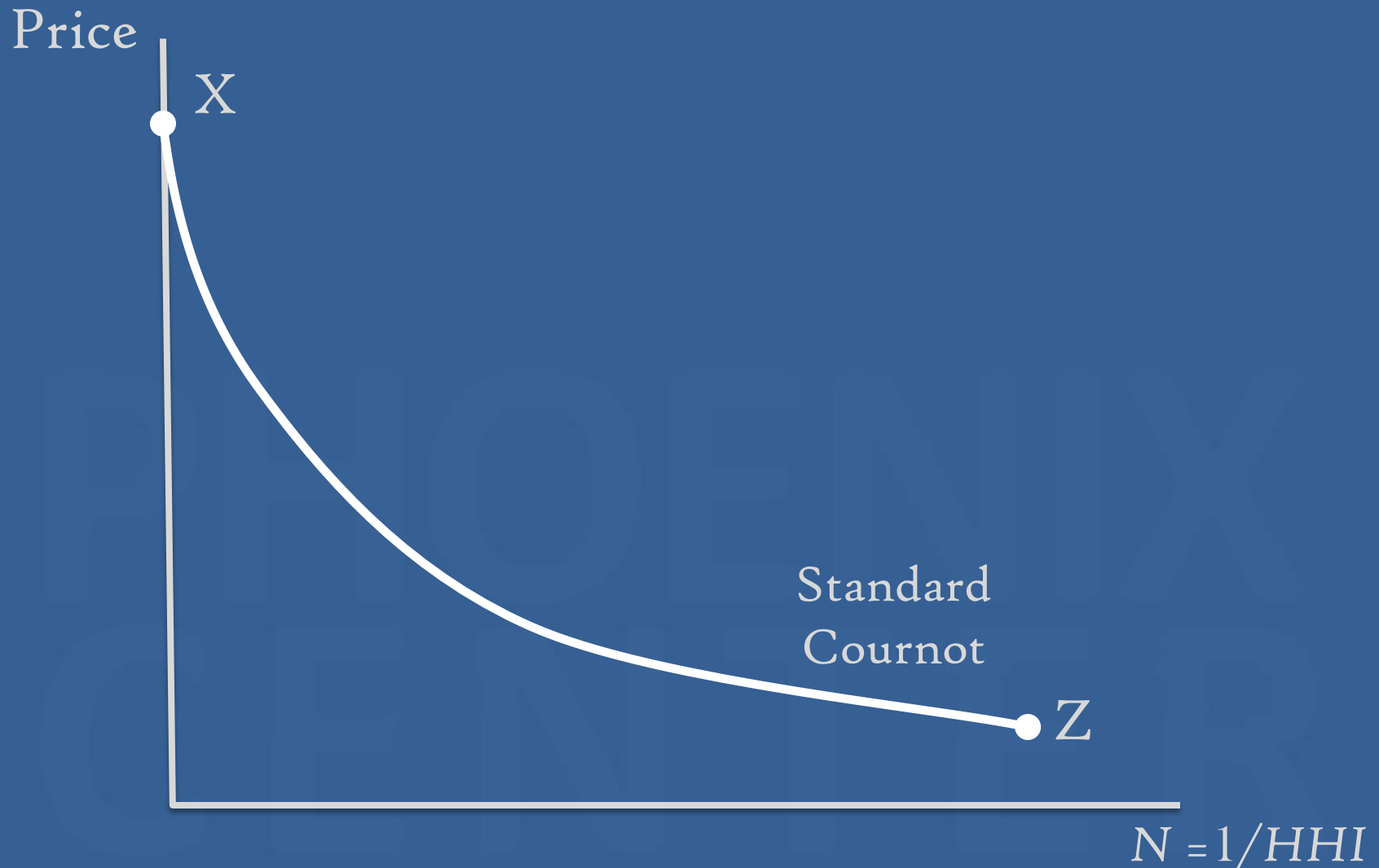
N	Q	ΔQ	HHI
1	0.50	...	1.00
2	0.66	0.17	0.50
3	0.75	0.08	0.33
4	0.80	0.05	0.25
5	0.83	0.03	0.17
6	0.86	0.02	0.14

“the transaction raises competitive concerns because it would increase concentration substantially in many markets... [The increases] are a strong indicator of a harm to competition....”

FCC Staff Report, AT&T/T-Mobile Merger

Solutions

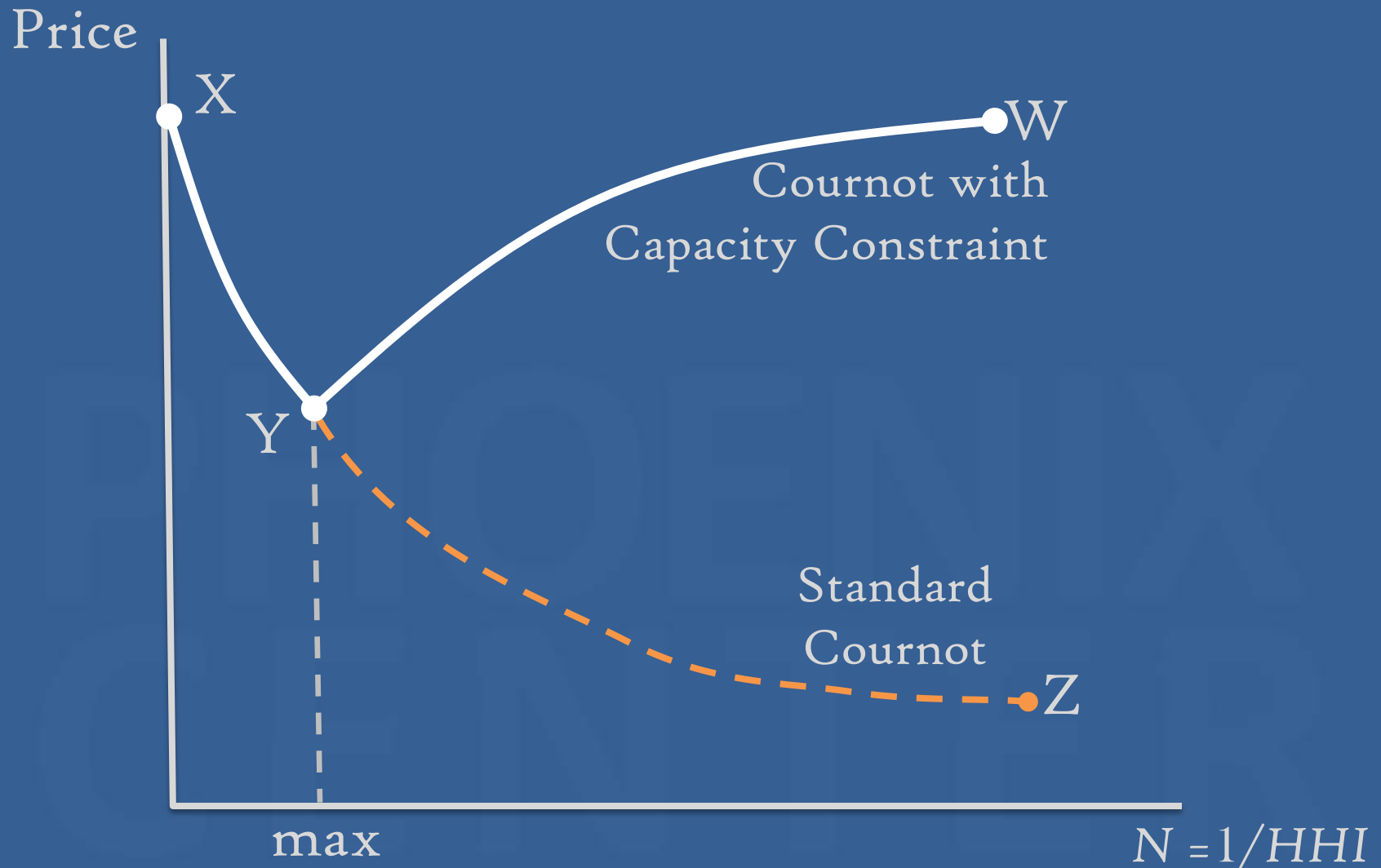
Cournot without Spectrum Crunch



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FCC Staff Report, AT&T/T-Mobile Merger

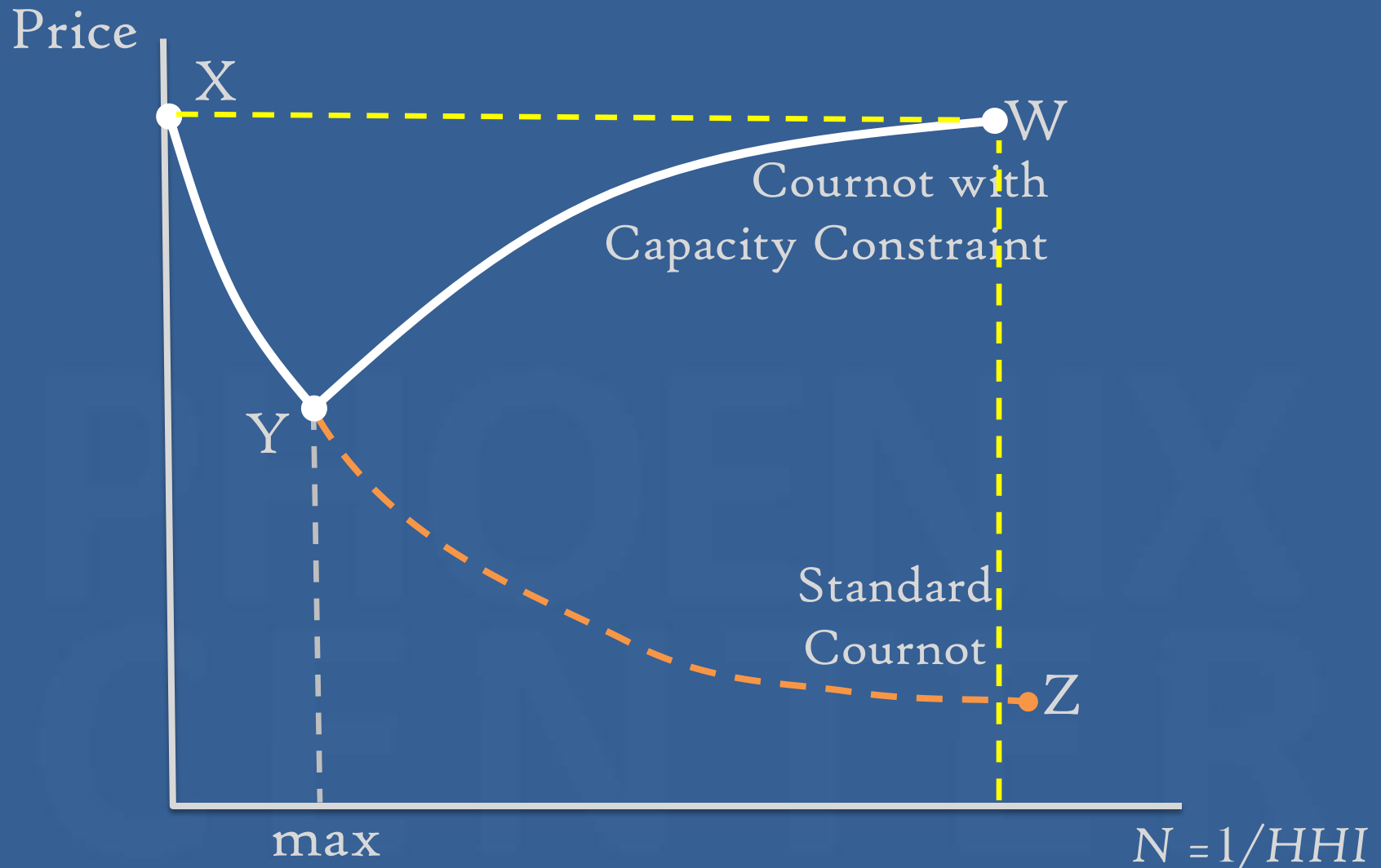
Cournot **with** Spectrum Crunch



“The spectrum crunch is the single biggest threat to one of the most promising parts of our economy.”

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Cournot with Spectrum Constraint



Without Spectrum Crunch:

~ higher concentration = higher prices*

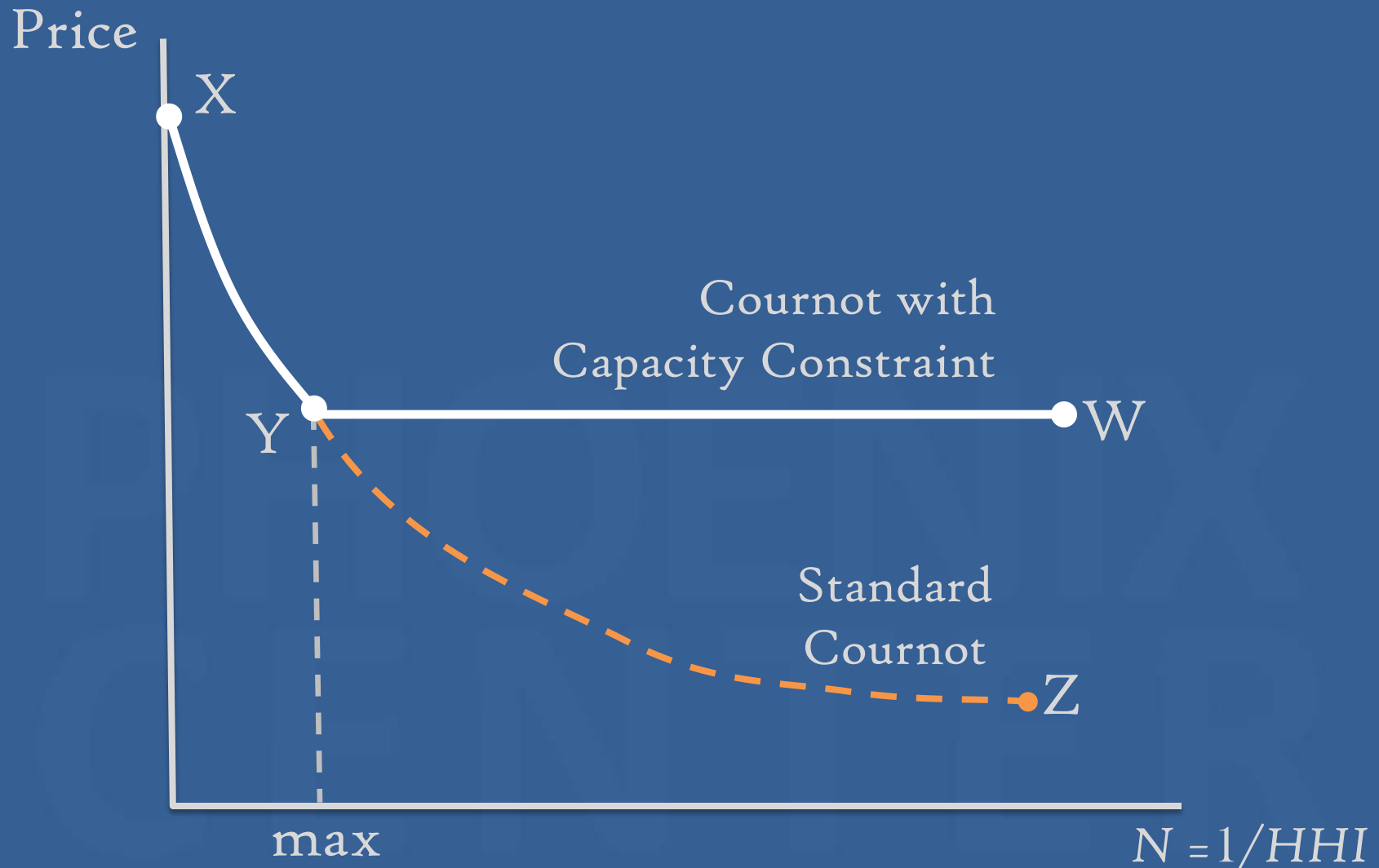
With Spectrum Crunch:

~ higher concentration = lower prices

* Assumes Cournot Competition

Cournot with Spectrum Crunch

(No “Scale Effect” in Spectrum)



UPP: Upward Pricing Pressure

- “Simple,” “Speedy,” “Initial Indicator,” “Screen,” “Flagged for further scrutiny”
- Bertrand-Nash Equilibrium
- “the envelope theorem allows us to calculate”

“we present GUPPI calculations as a measure of the competitive constraint that T-Mobile currently exerts on AT&T prices.”

FCC Staff Report, AT&T/T-Mobile Merger

UPP: Upward Pricing Pressure

- Recall: “the envelope theorem allows us to calculate”
- Under a binding spectrum constraint, the standard math for UPP doesn't work.
- The standard UPP is not legitimate.

As of Monday ...

“The spectrum crunch is the single biggest threat to one of the most promising parts of our economy.”

“ the mobile industry should work with governments ... to alleviate the upcoming spectrum crunch.”

Chairman Julius Genachowski

As of Tuesday ...

The “spectrum crunch” wasn’t worth considering.

Review

- The FCC has based much of its mobile industry agenda on the spectrum crunch.
- Yet, in the staff's review of the merger, it makes neither implicit nor explicit reference to the spectrum crunch.
- If there is in fact a spectrum crunch, now or soon, the staff report's conclusions are not only irrelevant, but precisely backwards.