



# Illinois Century Network



## Advanced Engineering Taskforce Meeting – 3<sup>rd</sup> October 2014



v1.0



# Introduction

- The following slides describe recommended actions for ICN given the current landscape that includes
  - Large reduction in state appropriation
  - Downward trend in number of connected customers
  - Downward trend in Internet Egress market price
  - Many customers still connected to ICN via T1
  - Bandwidth demand increasing exponentially
  - Migration of applications and services to 'the cloud'



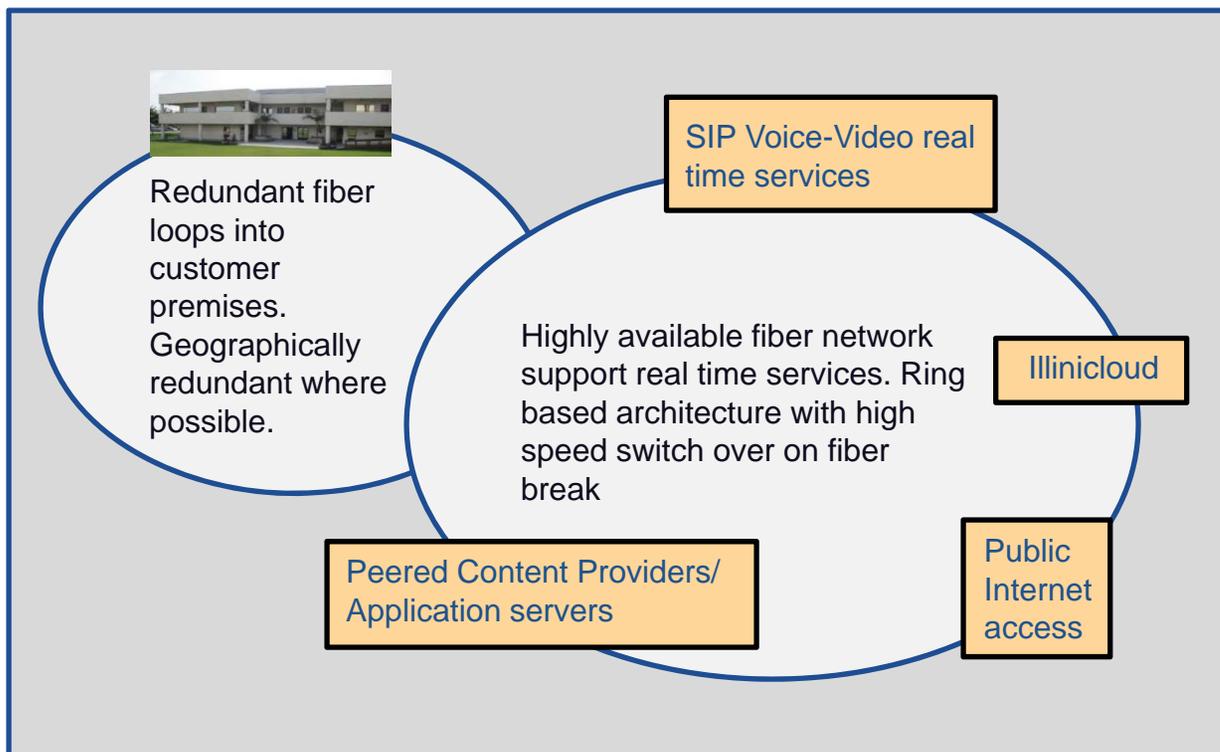
# Network Goals

## ICN Network

- ICN to offer secure, highly available connectivity (core and last mile) to applications and services used by core constituents
- Peering with content and applications providers focused on serving ICN customers
- Supports Voice and Video services
- Ring based, redundant architecture, providing high speed switch over on fiber cut
- SIP based VoIP application supported, with core network QoS

## Customer Sites

- Focused on managing end user devices and the in-building wireless and wireline network
- No or minimal applications servers



- QoS enabled, secure, highly available, redundant, fiber optic statewide network supporting real time applications, services and content. Applications, services and content targeted to ICN core customers.
- Core customers manage their in-building wireless and wireline network and end user devices. Applications and services hosted by the ICN network





# Recommendations

- **To directly address reduction in state appropriation**
  - Remove the free allocation, replace with standard pricing for bandwidth
  - Introduce minimum purchase amount of \$140 for 10Mb/s
  
- **To facilitate expansion of broadband**
  - Construct fiber to customers close to ICN network
  - Partner with private providers in shared build costs to community anchor institutions
  - Allow ICN to act as the end to end supplier of broadband connections to primary customers



# Recommendations

- **Enhanced Broadband Connections**
  - Develop on-net service offering, for example, increased bandwidth (5x) for customers
  - Develop secure, protected links to certain content providers e.g. Illinycloud
  
- **Enhance Applications and Services**
  - Provide hosted QoS enabled SIP trunks for customers using VoIP solutions
  - Promote usage of cloud services through secure ICN network
  - Deep dive on ICN services. Selected engineering updates to the services then re-launch.



# Take Rate Analysis

## Impact Analysis of Removing the Free Allocation



# Take Rate Analysis

- Snapshot of “EMS Combined” database was taken on September 23<sup>rd</sup> 2014
- “Indirect” locations removed from database
- Duplicate “Site names” removed
- Locations with category of ICN, Telco or Internet Service provider removed
- Results in 2683 sites / entries in the customer database
  
- Price each site is paying for bandwidth noted, based on bandwidth purchase capped by Rate Limit.
- A “Take Rate” of 20%, 40%, 60%, 80%, 100% is then applied to the primary revenue. 20% take rate means that after the free allocation is removed, 20% of primary customer revenue stays with ICN, 80% leaves. (In this model, the take rate applies equally to all customer categories within primary customers.)



# Price Scenarios

- The price scenario's used in the model are shown below. For each price scenario, a take rate of 20%, 40%, 60%, 80%, 100% is implemented

Bandwidth Mb/s	Price Scenario Number						
	1	2	3	4	5	6	7
10	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$10.00	\$26.00
20	\$13.50	\$13.50	\$12.00	\$12.00	\$10.00	\$8.00	\$13.00
50	\$11.50	\$11.50	\$10.00	\$9.00	\$8.00	\$6.00	\$9.00
100	\$10.00	\$10.00	\$9.00	\$6.00	\$6.00	\$5.00	\$6.00
200	\$9.75	\$9.75	\$8.00	\$5.50	\$5.00	\$4.00	\$5.50
500	\$9.50	\$9.50	\$7.00	\$5.00	\$4.00	\$3.00	\$5.00
1000	\$9.00	\$9.00	\$6.00	\$4.50	\$3.00	\$2.00	\$4.50
Minimum purchase level in \$	\$30.00	\$140.00	\$140.00	\$140.00	\$140.00	\$100.00	\$260.00

Current Pricing

Recommended Pricing



# Price Scenarios

- Revenue at different take rates for each pricing scenario

With current pricing kept constant, a 20% - 40% take rate is expected

With a price reduction, a 60% - 80% take rate is expected

	Take Rate	20%	40%	60%	80%	100%
<b>Price Scenario 1</b> (\$14 to \$9, \$30)	Primary Revenue	\$1,140,687	\$2,281,374	\$3,422,061	\$4,562,748	\$5,703,435
	Non-Primary Revenue	\$3,816,531	\$3,816,531	\$3,816,531	\$3,816,531	\$3,816,531
	Total Revenue	\$4,957,218	\$6,097,905	\$7,238,592	\$8,379,279	\$9,519,966
<b>Price Scenario 2</b> (\$14 to \$9, \$140)	Primary Revenue	\$1,246,973	\$2,493,947	\$3,740,920	\$4,987,894	\$6,234,867
	Non-Primary Revenue	\$5,477,883	\$5,477,883	\$5,477,883	\$5,477,883	\$5,477,883
	Total Revenue	\$6,724,856	\$7,971,830	\$9,218,803	\$10,465,777	\$11,712,750
<b>Price Scenario 3</b> (\$14 to \$6, \$140)	Primary Revenue	\$1,079,904	\$2,159,808	\$3,239,712	\$4,319,616	\$5,399,520
	Non-Primary Revenue	\$4,646,100	\$4,646,100	\$4,646,100	\$4,646,100	\$4,646,100
	Total Revenue	\$5,726,004	\$6,805,908	\$7,885,812	\$8,965,716	\$10,045,620
<b>Price Scenario 4</b> (\$14 to \$4.50, \$140)	Primary Revenue	\$896,521	\$1,793,042	\$2,689,564	\$3,586,085	\$4,482,606
	Non-Primary Revenue	\$4,089,810	\$4,089,810	\$4,089,810	\$4,089,810	\$4,089,810
	Total Revenue	\$4,986,331	\$5,882,852	\$6,779,374	\$7,675,895	\$8,572,416
<b>Price Scenario 5</b> (\$14 to \$3, \$140)	Primary Revenue	\$816,480	\$1,632,960	\$2,449,440	\$3,265,920	\$4,082,400
	Non-Primary Revenue	\$3,686,856	\$3,686,856	\$3,686,856	\$3,686,856	\$3,686,856
	Total Revenue	\$4,503,336	\$5,319,816	\$6,136,296	\$6,952,776	\$7,769,256
<b>Price Scenario 6</b> (\$10 to \$2, \$140)	Primary Revenue	\$625,522	\$1,251,043	\$1,876,565	\$2,502,086	\$3,127,608
	Non-Primary Revenue	\$2,655,036	\$2,655,036	\$2,655,036	\$2,655,036	\$2,655,036
	Total Revenue	\$3,280,558	\$3,906,079	\$4,531,601	\$5,157,122	\$5,782,644
<b>Price Scenario 7</b> (\$26 to \$4.50, \$260)	Primary Revenue	\$1,106,922	\$2,213,844	\$3,320,766	\$4,427,688	\$5,534,610
	Non-Primary Revenue	\$6,125,970	\$6,125,970	\$6,125,970	\$6,125,970	\$6,125,970
	Total Revenue	\$7,232,892	\$8,339,814	\$9,446,736	\$10,553,658	\$11,660,580





# Price Scenarios

- Revenue growth assuming growth in bandwidth and subscribers at a 20% - 30% level
- Starting bandwidth assumes a 60% take rate

Growth Rate	Fiscal Year					
	2016	2017	2018	2019	2020	2021
5%	\$6,779,374	\$7,118,343	\$7,474,260	\$7,847,973	\$8,240,371	\$8,652,390
10%	\$6,779,374	\$7,457,311	\$8,203,043	\$9,023,347	\$9,925,681	\$10,918,250
15%	\$6,779,374	\$7,796,280	\$8,965,722	\$10,310,580	\$11,857,167	\$13,635,743
20%	\$6,779,374	\$8,135,249	\$9,762,299	\$11,714,758	\$14,057,710	\$16,869,252
25%	\$6,779,374	\$8,474,218	\$10,592,772	\$13,240,965	\$16,551,206	\$20,689,008
30%	\$6,779,374	\$8,813,186	\$11,457,142	\$14,894,285	\$19,362,570	\$25,171,341
40%	\$6,779,374	\$9,491,124	\$13,287,573	\$18,602,602	\$26,043,643	\$36,461,100

- Starting bandwidth assumes a 80% take rate

Growth Rate	Fiscal Year					
	2016	2017	2018	2019	2020	2021
5%	\$7,675,895	\$8,059,690	\$8,462,674	\$8,885,808	\$9,330,098	\$9,796,603
10%	\$7,675,895	\$8,443,485	\$9,287,833	\$10,216,616	\$11,238,278	\$12,362,106
15%	\$7,675,895	\$8,827,279	\$10,151,371	\$11,674,077	\$13,425,188	\$15,438,967
20%	\$7,675,895	\$9,211,074	\$11,053,289	\$13,263,947	\$15,916,736	\$19,100,083
25%	\$7,675,895	\$9,594,869	\$11,993,586	\$14,991,982	\$18,739,978	\$23,424,973
30%	\$7,675,895	\$9,978,664	\$12,972,263	\$16,863,941	\$21,923,124	\$28,500,061
40%	\$7,675,895	\$10,746,253	\$15,044,754	\$21,062,656	\$29,487,718	\$41,282,806



# Enhanced Service & Pricing



## Current Pricing

ICN Broadband Services with Internet Egress				
There is an annual \$2.00 port fee per Megabit on MetroEthernet Services. The port fee may be included in the monthly recurring cost as shown.				
Service Level In Mbps	Pricing per Mbps	Monthly Port Fee	Monthly Recurring Cost with Port Fee Included	Installation
10	\$14.00	\$1.67	\$141.67	Waived
20	\$13.50	\$3.33	\$273.33	Waived
50	\$11.50	\$8.33	\$583.33	Waived
100	\$10.00	\$16.67	\$1,016.67	Waived
200	\$9.75	\$33.33	\$1,983.33	Waived
500	\$9.50	\$83.33	\$4,833.33	Waived
1,000	\$9.00	\$166.67	\$9,166.67	Waived
Note: The port fee for T1 circuits is \$55.00 per month.				
No additional cost for Layer 2 and VRF services.				

## Proposed Service Pricing

Egress Service Level in Mb/s	On-Net Service Level in Mb/s	Price per Egress Mb/s	Monthly Price
10	50	\$14.00	\$140
20	100	\$12.00	\$240
50	250	\$9.00	\$450
100	500	\$6.00	\$600
200	1000	\$5.50	\$1,100
500	2500	\$5.00	\$2,500
1000	5000	\$4.50	\$4,500

Significant price reduction at 100Mb/s encourages customers to move to higher bandwidths

Service enhanced with 5x On-net bandwidth





# Revenue

- Total ICN Revenue with 100% and 60% take rate, using Price Scenario 4 - \$140 - \$4.50

**With Pricing Scenario 4 (\$140 to \$4.50)**

Revenues	Take Rate of Primary Customers	
	100%	60%
State Appropriation	\$1,000,000	\$1,000,000
Primary & Non-Primary Customers	\$8,572,416	\$6,779,374
Private Customers	\$3,100,000	\$3,100,000
<b>Total Revenue</b>	<b>\$12,832,416</b>	<b>\$11,039,374</b>