SUCCESS MEASURES

INFORMATION TECHNOLOGY

December 2021

COLORADO
COMMUNITY COLLEGE SYSTEM

Mission for System IT

- ## Vision of Success (What we seek to be)
  - We strive to be a model information and technology organization recognized for proactive leadership, collaboration, innovation, transparency and responsive customer service.

- ## Mission Statement (what we do)
  - We, the employees of the Colorado Community College System Information Technologies, are committed to
  - Providing a robust and solid technology infrastructure
  - Facilitating the colleges' ability to teach and students' ability to learn
  - Supporting operational services and business functions at both enterprise and distributed levels.
  - Align our efforts and our projects with Colorado Community College System's strategic goals of transform the students experience, transform our own workforce experience, create education without barriers through transformative partnerships, redefine our value proposition through accessibility, affordability, quality, accountability, resource development and operational excellence.

- ## Core Values (Guiding Principles for achieving our mission and vision)
  - Pride: we take pride in our work. We strive for personal and professional excellence. We recognize and reward initiative and problem solving.
  - Quality: We ensure that our services and deliverables meet industry best practices found in both the technology and higher education industries while we adapt to an ever-changing technology environment.
  - Respect: We appreciate and value one another. Our actions are carried out with trust, integrity and fairness.
  - Service: We focus on our customer needs, while being flexible and adaptable to business requirements. We recognize in order to improve service, we must be a learning organization that seeks improvement and embraces accountability in a pro-active manner.
  - Teamwork: We support a cooperative work environment. Our team is strengthened by the diversity and contributions of each member. We strive to communicate openly and honestly.
  - Collaboration: We work together with our customers to find reasonable and flexible solutions to their business problems. We seek to listen to our customers, understand their perspective and support their needs. We strive to say, "yes, we can".
  - We support and encourage an inclusive and transparent governance process for IT investments and projects.

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1 INTRODUCTION

The goal of the Information Technology division at Colorado Community College System Office (System IT) is to provide the CCCS colleges and System Office with the highest quality technology-based services, in the most cost-effective manner, to facilitate the Colleges' mission as it applies to administration, teaching, learning, and community. Under the leadership of the Vice Chancellor for IT and CIO, System IT seeks to foster partnership and collaboration with academic and administrative units across all CCCS colleges in order to create a robust, best-in-class IT environment centered around student success and organizational effectiveness.

System IT creates a significant positive impact on the daily business activities across all the CCCS colleges and System Office and in this report we provide an insight into the contributions System IT makes on a daily basis by summarizing key figures and statistics that illustrate these accomplishments. Unless stated otherwise, the statistics included in this report are from June 2020 through May 2021.
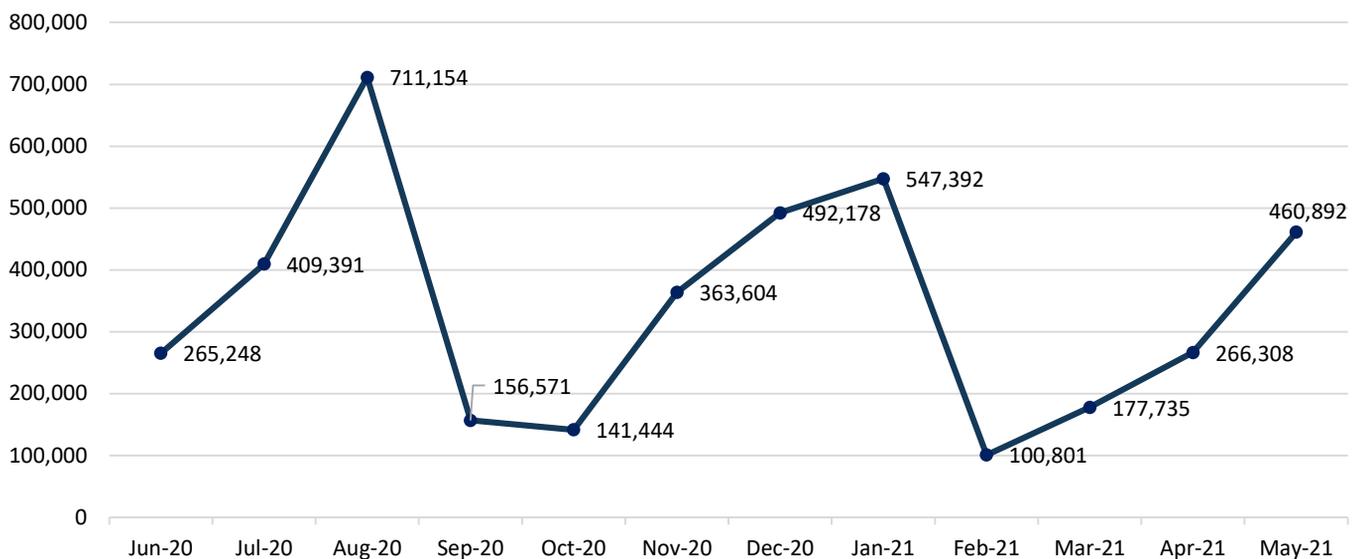
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2 ELLUCIAN BANNER

- Ellucian Banner is the CCCS enterprise resource planning (ERP) system.

- System IT locally maintains and supports Admin Pages (also known as Banner 9) and Banner Self-Service (SSB).

- Banner 9 and SSB contain several modules, including Banner Student, Banner Finance, Banner Human Resources, and Banner Financial Aid.

2.1 BANNER STUDENT TRANSACTIONS

- Activities conducted directly by students within Banner applications.
- Includes student registrations, adds, and drops.
- Student registrations, adds, and drops can be initiated using other applications, such as Banner self-service, EAB Navigate, or the Mobile App.
- Regardless of the registration application, all student transactions are eventually processed by Banner and stored in the Banner Database.

Total Number of Student Transactions in Banner per Month

Month	Transactions
Jun-20	265,248
Jul-20	409,391
Aug-20	711,154
Sep-20	156,571
Oct-20	141,444
Nov-20	363,604
Dec-20	492,178
Jan-21	547,392
Feb-21	100,801
Mar-21	177,735
Apr-21	266,308
May-21	460,892

- **More than 4 million student transactions processed from June-2020 to May-2021, 13.6% fewer transactions than the prior year.**

- **An average of 341,060 transactions per month.**

- **An average of 11,213 transactions per day.**

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2.2 BANNER FINANCIAL AID

- Provides visibility and tracking of Financial Aid processes.

- Automates Financial Aid daily tasks.

- System IT has customized some Banner Financial Aid processes and implemented other processes to integrate Banner Financial Aid with other CCCS applications and state and federal education department applications.

■ Total Paid Financial Aid   ■ Paid Financial Aid for the Fall Term

Paid Financial Aid Over the Last Ten Years

- Over $3 billion of Financial Aid grants processed over the last 10 years.

- Financial Aid paid to students decreased every year from 2011-2012 through 2018-2019. However, the past two years have seen a 12% increase from 2018-2019.

- Paid Financial Aid for 2020-2021 is around 36% less than the year 2011-2012, which is the highest in the last ten years.

- Total Financial Aid for 2020-2021 ($271,497,802) is 0.25% higher than 2019-2020 (270,809,599).

2.3 EMPLOYEE PAYROLLS (GROSS PAY)

- Banner supports the administration of employment, benefits, payroll, and all other aspects of the employee lifecycle.


Total Employee Gross Pay in Millions
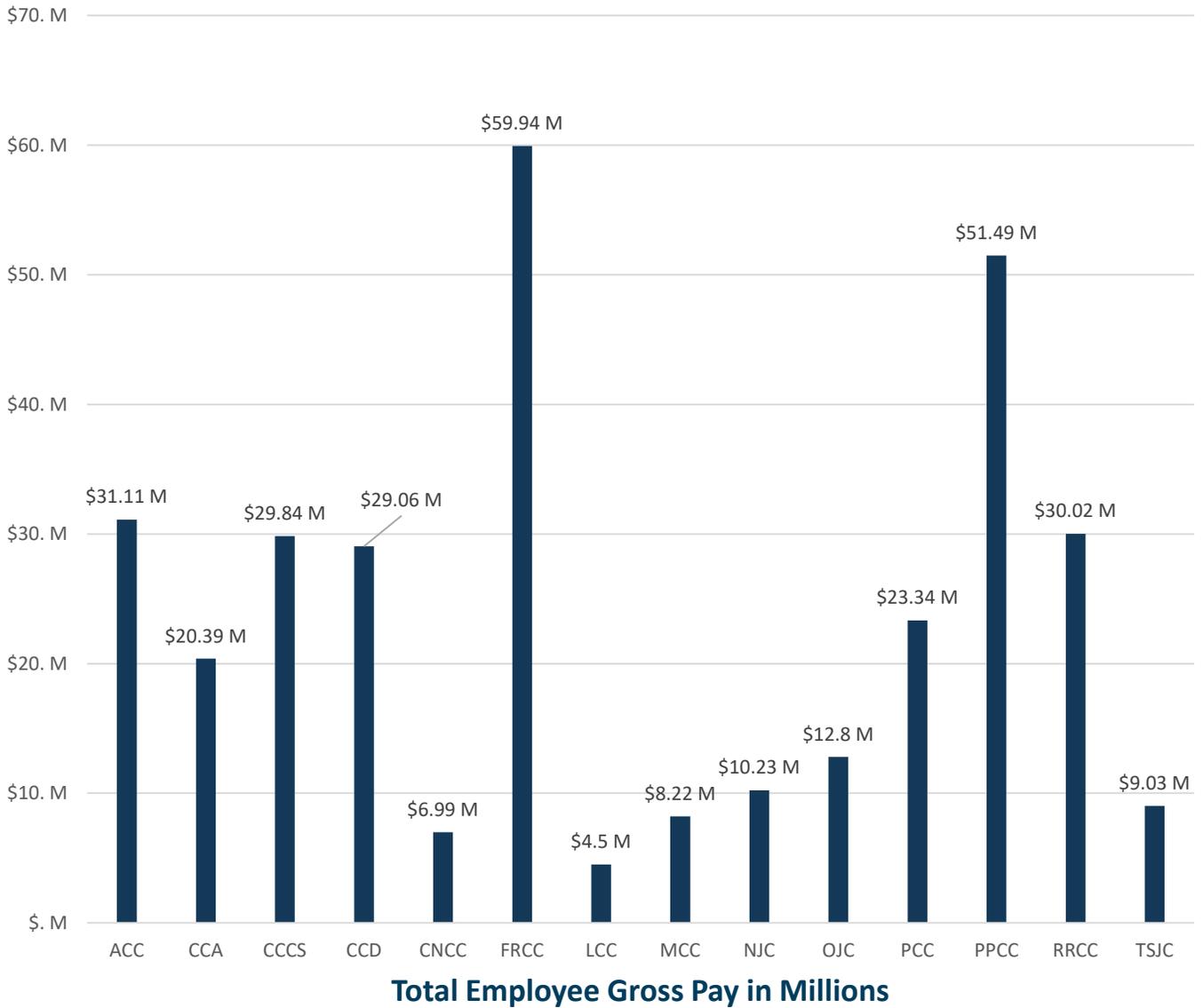
- **The total dollar amount of gross pay processed for all colleges from July-20 through May-21 was $326,956,050, which is a 4.54% increase from the previous year.**

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2.4 ONLINE TUITION PAYMENTS

- Online tuition payments are processed through our web payment gateway, Transact (formerly known as CashNet), which is integrated with Banner.
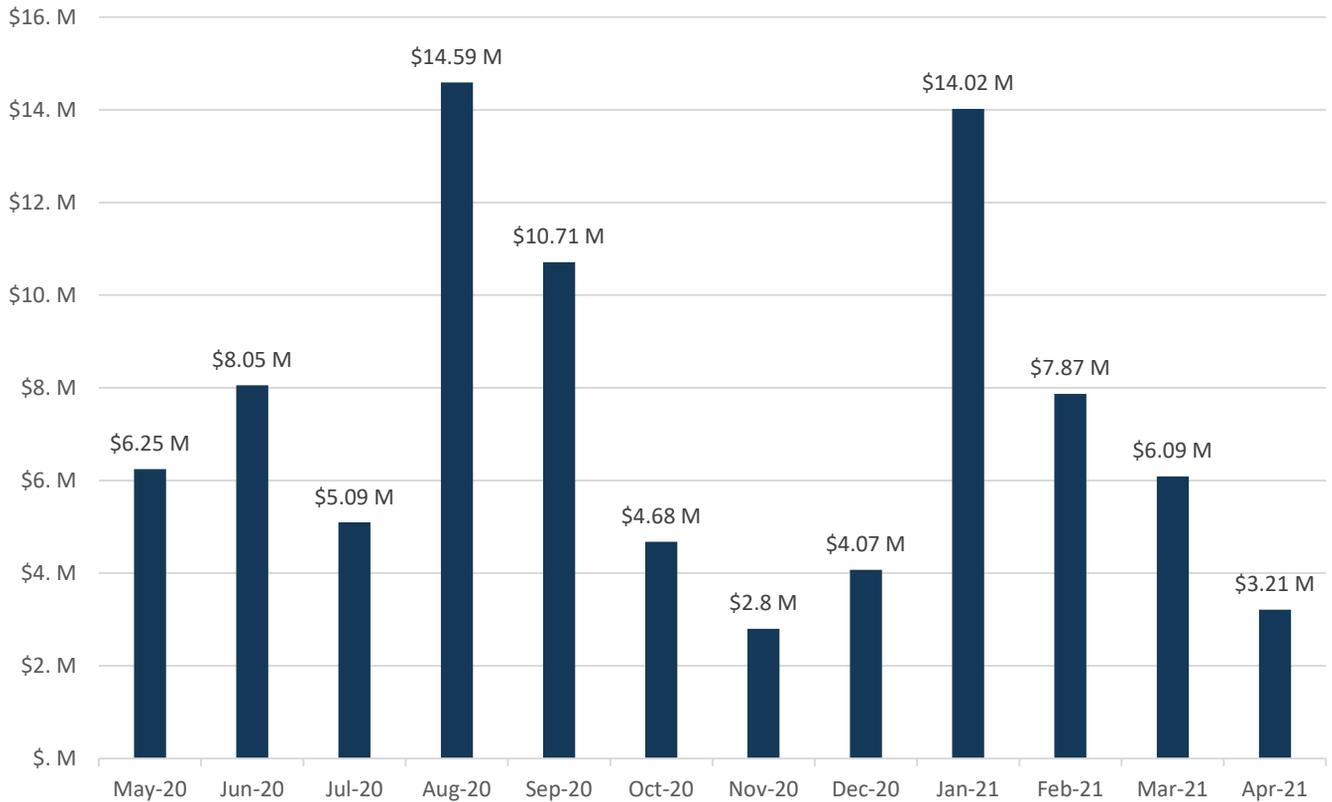

Total Tuition Payments Dollars Processed Through CashNet

- **The total amount of tuition processed over the last fiscal year through Transact for all colleges is $87,430,257, which is 16.0% higher than the previous year ($75,396,848). This is because of fewer cashier offices/visits due to the pandemic.**

- **The collected tuition of $87,430,257, required 72,974 Banner transactions, which results in an average of $1,198.10 collected per transaction.**

2.5 TAX INTERCEPT FUNDS

- Tax intercept is a process to intercept State of Colorado tax refunds as payment of debts that have been submitted to collections.

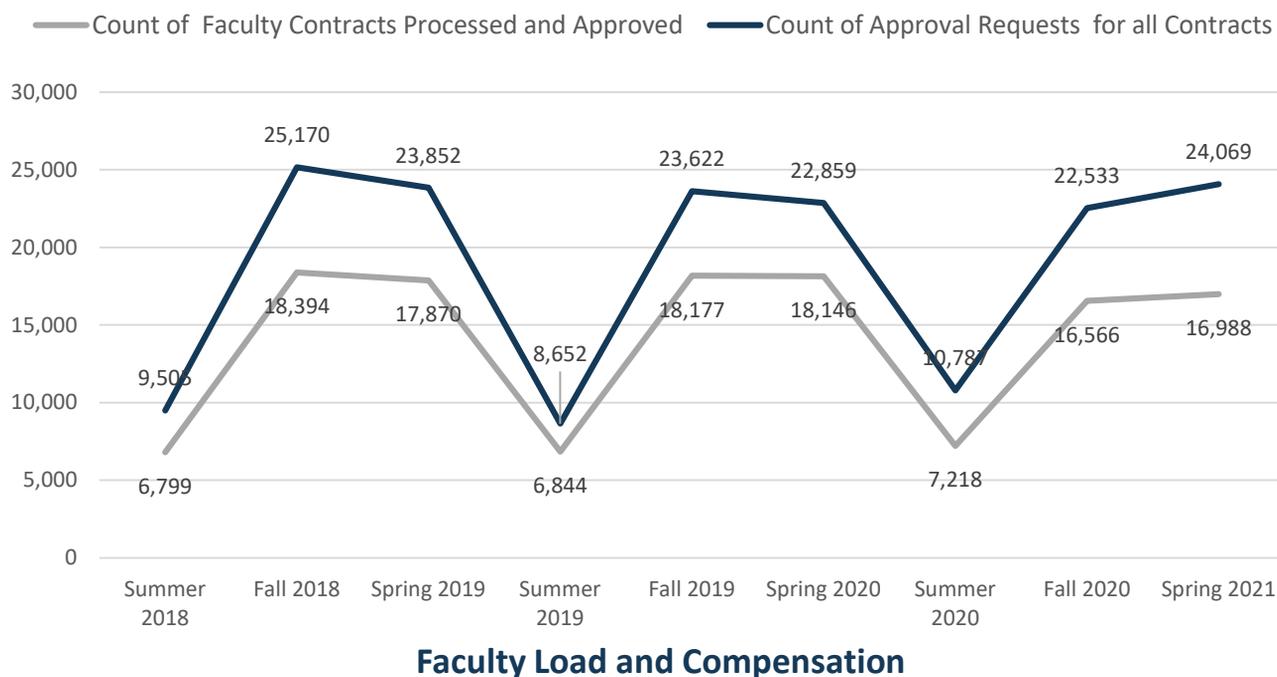- This process was developed by System IT in conjunction with the State of Colorado.
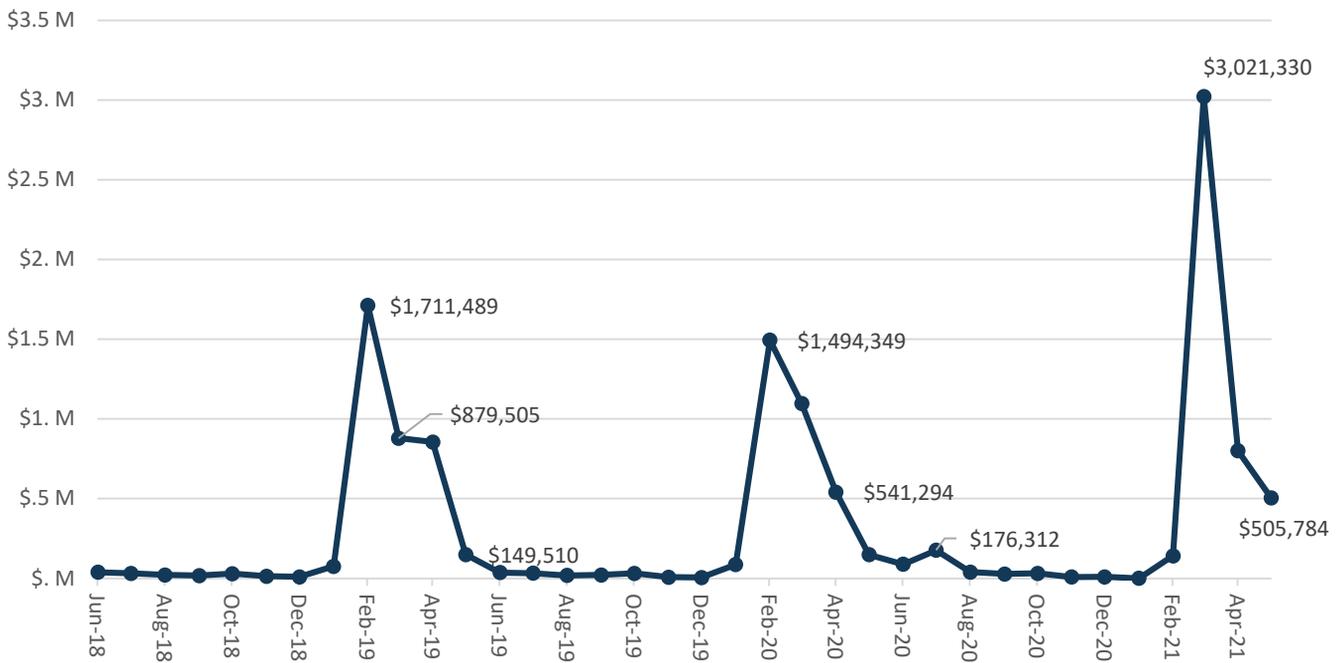
Tax Intercept Funs Collected Since June 2018

- **This process helped CCCS obtain $12,204,048 in funds since June 2018.**

- **$4,849,834 dollars were collected automatically in the past fiscal year via this process. This is 27% higher than the previous year.**

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2.6 FACULTY LOAD AND COMPENSATION

- Faculty Load and Compensation (FLAC II) is a heavily customized Banner module that processes faculty, adjunct, and overload teaching assignments into the payroll system.

- FLAC II bridges the gap between Banner HR, Finance, Payroll, and Student modules as well as providing an electronic workflow function to route educator assignments for approval before they are added to the payroll system.

—— Count of Faculty Contracts Processed and Approved   —— Count of Approval Requests for all Contracts

Faculty Load and Compensation

- **One contract may involve multiple approval requests.**

- **127,002 faculty contracts were processed over the last three years.**

- **40,772 contracts processed from Summer 2020 through Spring 2021, which is 5.5% fewer contracts than last year.**

2.7 ACCESS REQUESTS

- System IT supports and administers various levels and types of access within Banner and IT environments.

- Access can be requested for a specific Banner module, with pre-defined roles, and other IT applications and resources, such as Degree Works, Cognos, Portal Admin, a server or shared folder.

- Access requests are submitted via email and they follow established procedures and require different level of approvals depending the required access type.

Access Requests

Month	Incoming Request Emails	Number of Processed Requests
Jun-20	219	143
Jul-20	222	285
Aug-20	250	203
Sep-20	311	182
Oct-20	249	184
Nov-20	188	255
Dec-20	190	112
Jan-21	221	135
Feb-21	260	278
Mar-21	268	136
Apr-21	157	151
May-21	195	129
Total	2,730	2,193

- System IT processed 2,193 security requests over the last fiscal year. It is around 51% less than the previous year at 4,453 requests . This is because the schools did not hire/terminate as many student workers as the previous years due to no in-person business.

- Access requests include both granting and disabling access.

- An access request could be disapproved by the approval authority due to various reasons.

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3 CRM RECRUIT

- Ellucian cloud solution that supports the recruiting and admissions lifecycle.

- Provides tools for students to submit and track their admission applications and engage with staff or peers.

- System IT customized some of the Recruit processes and forms and implemented other processes to integrate Recruit with other CCCS systems, such as Banner, Portal, and Identity Management Systems.

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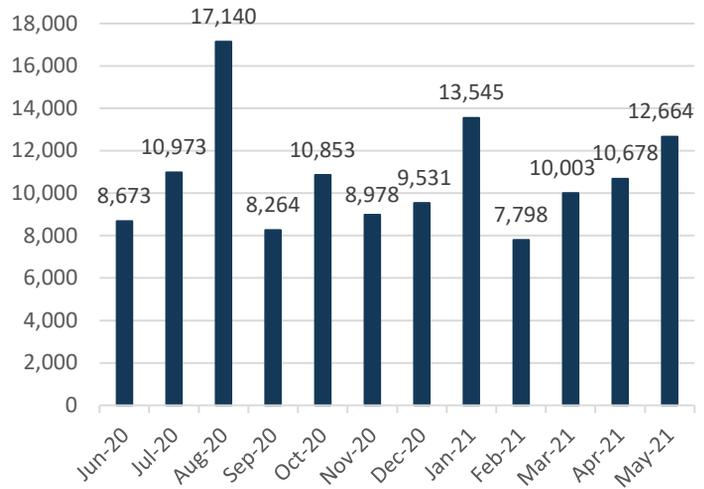
Total Active Applications By Month
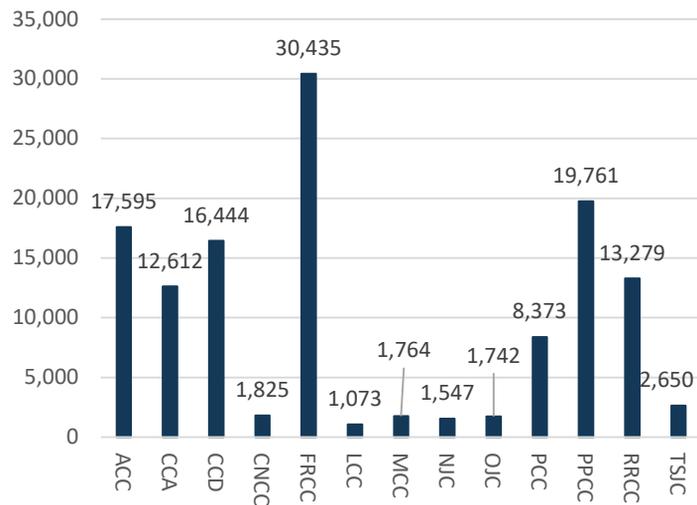
Active Recruit Applications By College

- Fraudulent applications that were deactivated by the colleges are not included.

- 129,100 active applications were processed for all colleges, 30% less than the previous year. This decline may be due in part to declining enrollment of new students during COVID as well as better identification of fraudulent applications.

4 PARCHMENT

- Parchment is the authorized vendor for all CCCS colleges to manage the ordering, processing, and secure delivery of official student transcripts.

- Provides students with the ease and convenience of ordering transcripts online.

- Transcripts requested online are sent securely to the colleges, universities, or scholarship funds that student select.

- System IT supports a number of processes that integrate Parchment with Banner.

Transcripts Processed

College	Electronic Processed by Parchment	Mail	Pick up on Campus	Totals
ACC	14,867	1	0	14,868
CCA	9,218	15	0	9,233
CCD	10,291	6	0	10,297
CNCC	1,607	0	0	1,607
FRCC	23,599	17	0	23,616
LCC	1,225	2	0	1,227
MCC	1,569	4	0	1,573
NJC	1,893	9	0	1,902
OC	1,633	6	0	1,639
PPCC	17,120	37	0	17,157
PCC	5,305	26	0	5,331
RRCC	5,966	6	0	5,972
TSC	1,867	4	0	1,871
Totals	96,160	133	0	96,293

- Over 99.9% of requested transcripts were processed electronically by Parchment.

- The total number of requests this year was 96,293, which is around 2% more than the previous year at 94,487.

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5 DEGREE WORKS

- Academic advising and degree progress monitoring tool that helps students and their advisors create a path to on-time graduation.

- Degree Works is fully integrated with Banner to allow students to easily identify which degree requirements have been satisfied.

Total Audit Views by Students and Advisors
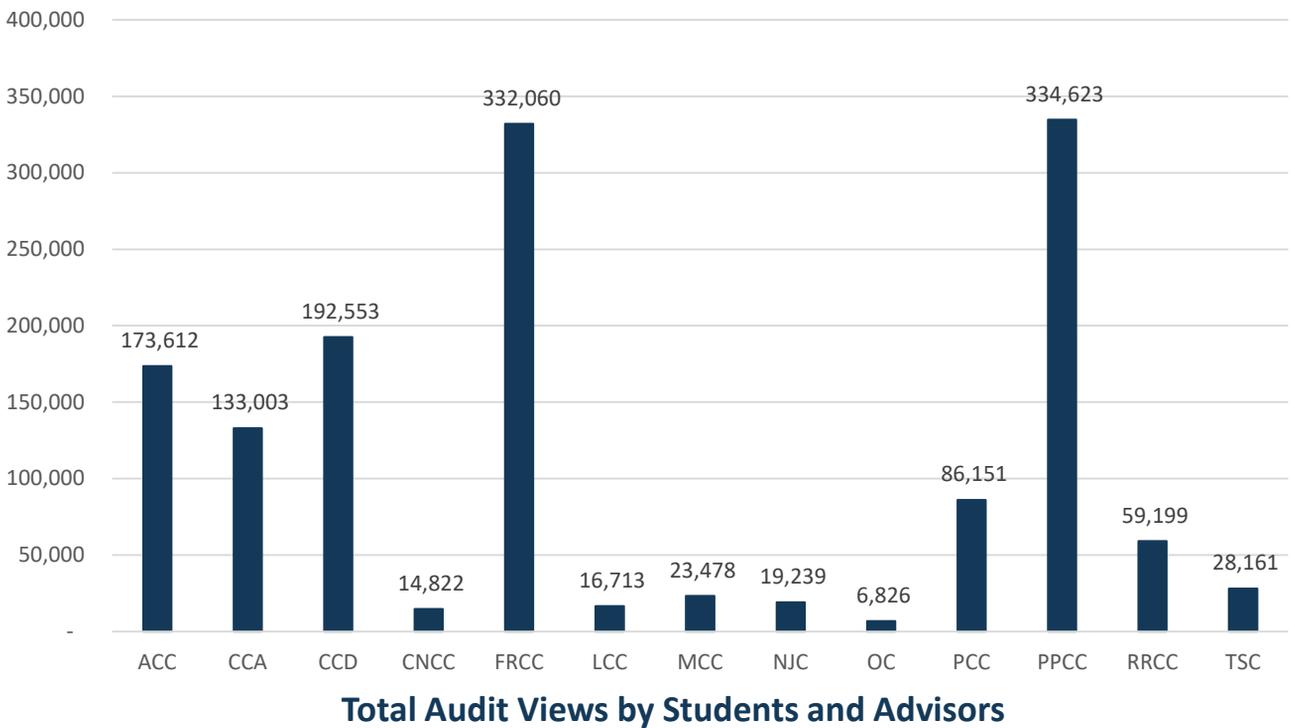
- **Audit view counts every time an audit is viewed by students and advisors.**

- **1,420,440 audit views were conducted by students and advisors for all colleges over the last fiscal year. That is 5.2% less than the previous year at 1,498,326.**

- **The highest number of audit views were conducted during the beginning and end of terms, specifically around the months of August (178,786), May (175,937), and January (172,705).**

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6 LUMINIS PORTAL

- Ellucian web services and delivery environment that enables CCCS colleges to provide an interactive and collaborative environment with a more personalized user experience.

- System IT locally maintains and supports the Portal and its components, such as LDAP, BEIS, BanPortal, and Solr. The school Portal Admins support their school contents and some features.

- Each college's Portal is branded based on the preference and requirements of each college.

- System IT customized some of the Portal processes and implemented other processes to integrate the Portal with other CCCS applications as well as Banner, Office 365, Active Directory, EAB Navigate, Parchment, and many other internal and external applications.

Portal Visits

Chart legend: Total Visits, Unique Users

Month	Total Visits	Unique Users
Jun-20	0.84 M	161 K
Jul-20	0.81 M	181 K
Aug-20	1.35 M	268 K
Sep-20	1.41 M	239 K
Oct-20	1.19 M	201 K
Nov-20	1.03 M	180 K
Dec-20	0.79 M	168 K
Jan-21	1.09 M	217 K
Feb-21	1.16 M	200 K
Mar-21	1.02 M	188 K
Apr-21	0.98 M	183 K
May-21	0.74 M	174 K

- **Unique users are counted based on the browser cookies/cache. When a user clears their browser cookies/cache, they will be treated as a new user.**

- **The Portal is used throughout the year with a total of over 12.4 million visits from Jun-20 to May-21, around 6.6% less than the previous year.**

- **On average, around 1 million visits per month.**

- **The monthly average of unique users is 196,580.**

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7 INSTITUTIONAL RESEARCH & BUSINESS INTELLIGENCE

System IT IRBI strives to support the day-to-day operations of the system and empower leaders at CCCS and our 13 community colleges to make evidence-based decisions for the betterment of our students through high quality data, research, reports, and analytics. This work includes the development and maintenance of our Operational Data Store (ODS) and Cognos, which utilizes data in the ODS for reporting. Our team also produces system-wide data products, supports grants and the CCCS foundation, provides research support, and responds to legislative and media inquiries.

In total, IRBI completed 124 projects from June 2020 to May 2021 . System-wide projects include::

- 14 Data Books (13 colleges plus the system)
- 6 Strategic Plan KPM Dashboards
- CUE Dashboard Update
- Annual Concurrent Enrollment Report
- Annual Developmental Education Report
- COVID Enrollment Survey
- CCCOnline Enrollment Survey – CO Online Project
- CCCOnline Faculty Survey – CO Online Project
- CARES Act Financial Aid Eligibility List
- Postsecondary Data Partnership Implementation (in-progress)

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7.1 COGNOS ANALYTICS

- IBM web-based integrated business intelligence suite that is used for creating reports and dashboards from various CCCS information systems.

- All data that is used for reporting is housed in the Banner Operational Data Store (ODS) which is the authoritative source for reporting across the System.

- The ODS at CCCS has been extended to allow reporting against "real-time" Banner data and will soon be the source of reporting for D2L and Degree Works data.

- All Shared Operational and Real-time Reports in Cognos are designed and supported by System IT.
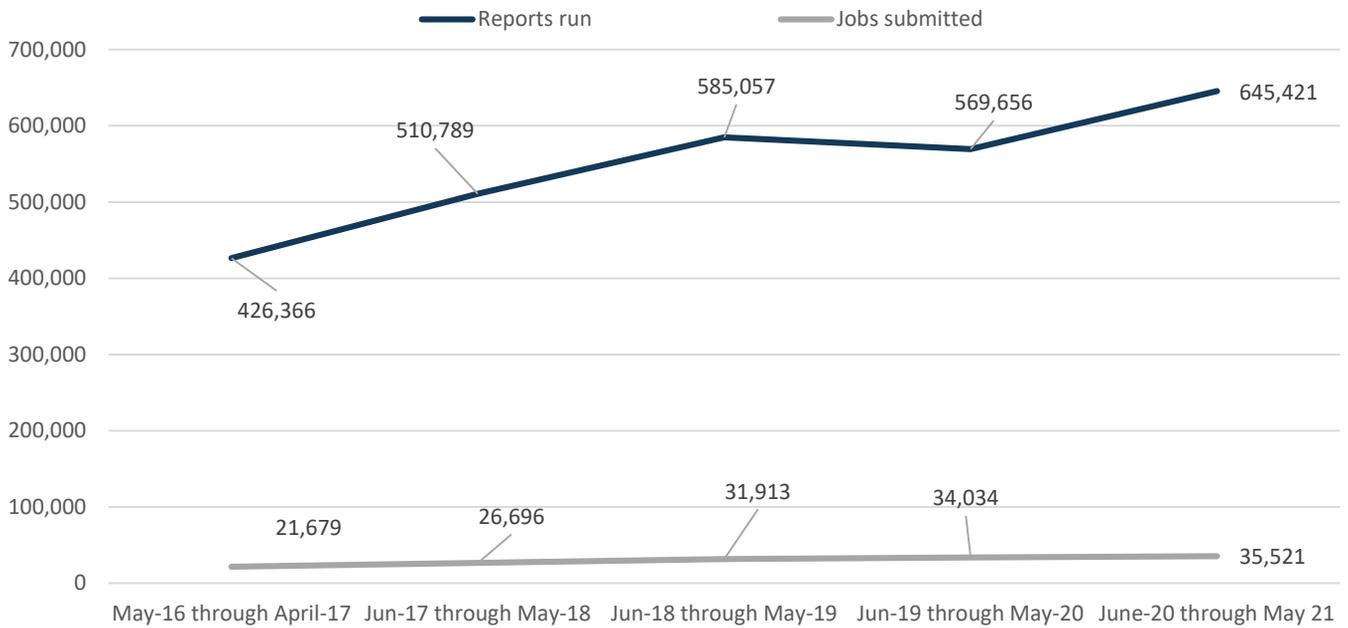
Total Number of Report and Job Runs Per Year

- **2,737,289 reports and 251,311 jobs were processed by Cognos over the last five years. This past year the number of reports run increased by over 13%.**

- **System IT's Institutional Research & Business Intelligence Department has seen the annual total number of reports and jobs run has seen a 51.4% and 63.8% increase, respectively, in the past five years.**

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8 AUTOMIC

- Automic (formally AppWorx) is a web-based application that is used to automate the running and submission of jobs and processes.

- System IT uses Automic to schedule most of Banner jobs, reports, and processes, such as payroll, financial aid, billing, finance control reports, placing advising holds and grade calculations.

- Automic is also used to schedule jobs and processes of other applications, such as Bookstores, Portal, Degree Works, and others.

Total Number of Jobs per Month
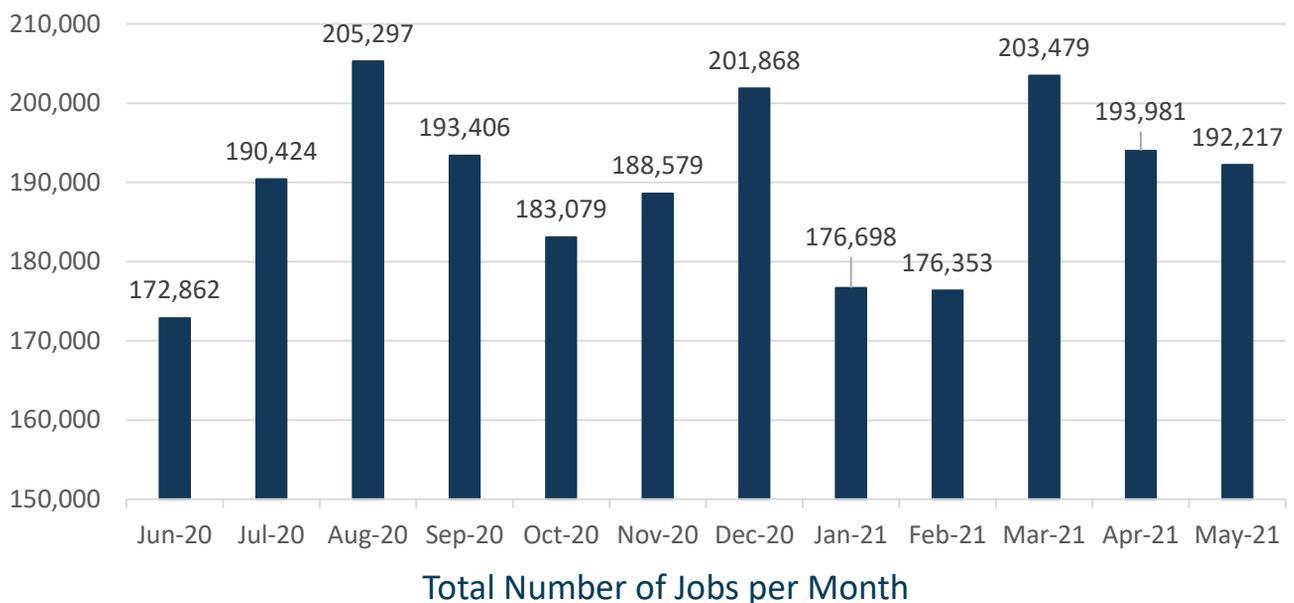
- **Automic processed almost 2.3 million jobs over the last fiscal year and that is 7% more than the previous year at 2.1 million.**

- **The daily average of processed jobs is 6,242 compared to 5,835 in the prior year.**

- **The monthly average of processed jobs is 189,854 compared to 177,501 in the prior year.**

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9 SYSTEM IT HELP DESK

- System IT Help Desk team provides support for the System Office as well as support on enterprise-wide systems and Wide Area Network support for the System as a whole.

- Requests through the help desk include a spectrum of inquiries ranging from programming, job scheduling and infrastructure to email, phone, video conferencing and network assistance.

- The desk is a single point of contact for all requests for System IT specific assistance.

- Standard desk hours are from 7:00 AM to 5:30 PM, Monday through Friday.

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System IT Help Desk Statistics

Month	Incoming Emails	Incoming Calls	Tickets Created	Tickets Closed
Jun-20	3,199	172	599	519
Jul-20	5,386	304	896	770
Aug-20	4,559	230	762	756
Sep-20	4,510	170	535	728
Oct-20	3,974	146	488	427
Nov-20	3,971	139	507	503
Dec-20	2,772	98	460	458
Jan-21	3,774	177	513	460
Feb-21	3,089	132	445	452
Mar-21	3,027	121	475	487
Apr-21	3,099	133	435	421
May-21	3,546	113	454	459
Total	**44,906**	**1,935**	**6,569**	**6,440**

- A ticket is created whenever the help desk staff is contacted. If the help desk staff is unable to answer or resolve the issue the ticket is escalated to other IT staff.

- 46,841 help requests were received during the last fiscal year which is 25% higher than the previous year.

- Around 86% of the help requests were resolved or answered by the help desk staff without a need to escalate. Help Desk staff were able to resolve 8% more issues without escalation than the prior year.

- The System IT help desk is busy throughout the year with an average of 3,903 requests per month.

- Around 98% of the tickets were closed successfully before the end of May 2021. The remaining tickets are in either in progress or completed but waiting for automated closure.

10   24X7 SUPPORT DESK STATISTICS

- CCCOnline works on behalf of CCCS colleges to assure the 24x7 Support Desk agents provide the proper service.

- The 24x7 Support Desk offers support to all students and instructors within CCCS.

- Students and instructors may request help through telephone, e-mail or chat. The 24x7 Support Desk assists with the college portal, D2L, Office 365, e-mail, printing, browser troubleshooting, and Banner-related issues.

- The 24x7 Support Desk offers a self-help website (https://help.ccs.edu) where students and instructors may find how-to and troubleshooting articles.

- The 24x7 Support Desk is provided by a third-party vendor, Istonish.
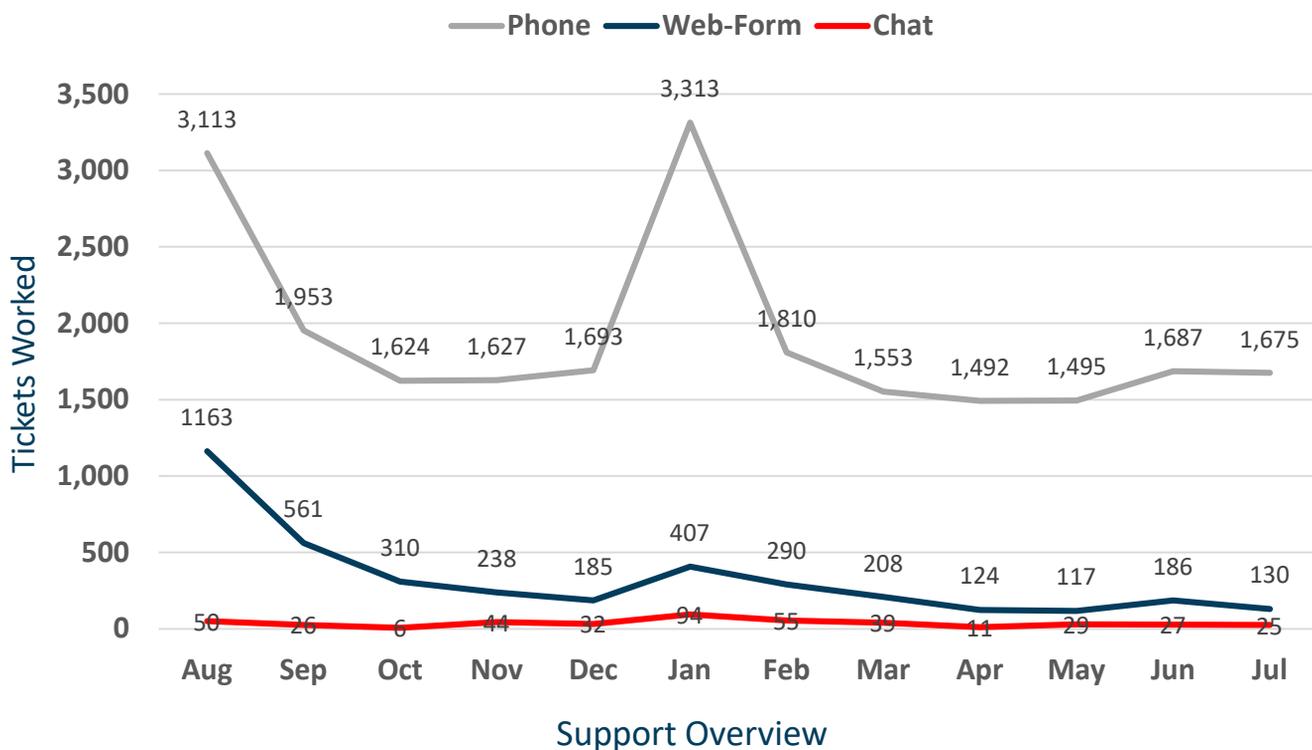
- **24X7 Support Desk is busy throughout the year.**

- **27,392 help desk requests were received from August 2020 through July 2021.**

- **The beginning of the fall and spring terms are usually busier than the rest of the year.**

10.1 24X7 SUPPORT DESK STATISTICS - Call Metrics

Call Metrics

	Calls Answered	Average Speed to Answer	Average Handle Time
Target	85% of call answered	80% answered within 90 seconds	9-10 minutes
Aug-20	38.89%↑	52.05%↑	9:44 Min↑
Sep-20	62.07%↑	71.97%↑	10:50 Min↑
Oct-20	71.34%↑	87.28%↑	9:43 Min↓
Nov-20	75.35%↑	87.24%↓	9:18 Min↓
Dec-20	86.18%↑	93.53%↑	9:03 Min↓
Jan-21	84.25%↓	89.68%↓	9:34 Min↑
Feb-21	92.81%↑	95.47%↑	9:58 Min↑
Mar-21	85.59%↓	89.56%↓	9:18 Min↓
Apr-21	86.58%↑	89.86%↑	9:31 Min↑
May-21	81.87%↓	84.10%↓	9:00 Min↓
Jun-21	79.14%↓	84.21%↑	9:26 Min↑
Jul-21	76.90%↓	86.37%↑	8:49 Min↓
Monthly Average	**75.89**	**83.45**	**9:36**

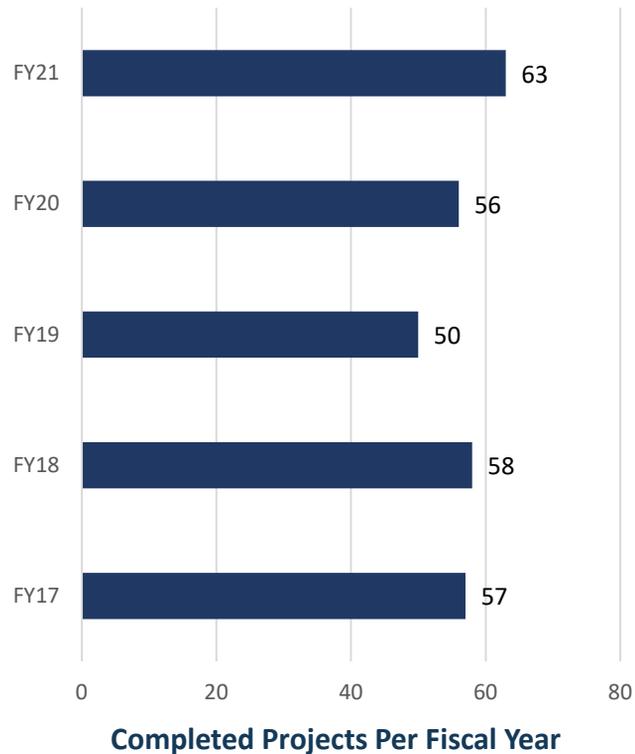**COLORADO**
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11 PROJECTS COMPLETED June 2020 through May 2021

- The following table shows the total number of projects completed during June 2020 through May 2021.

- Most of these projects were reviewed by the VP IT Governance Committee.

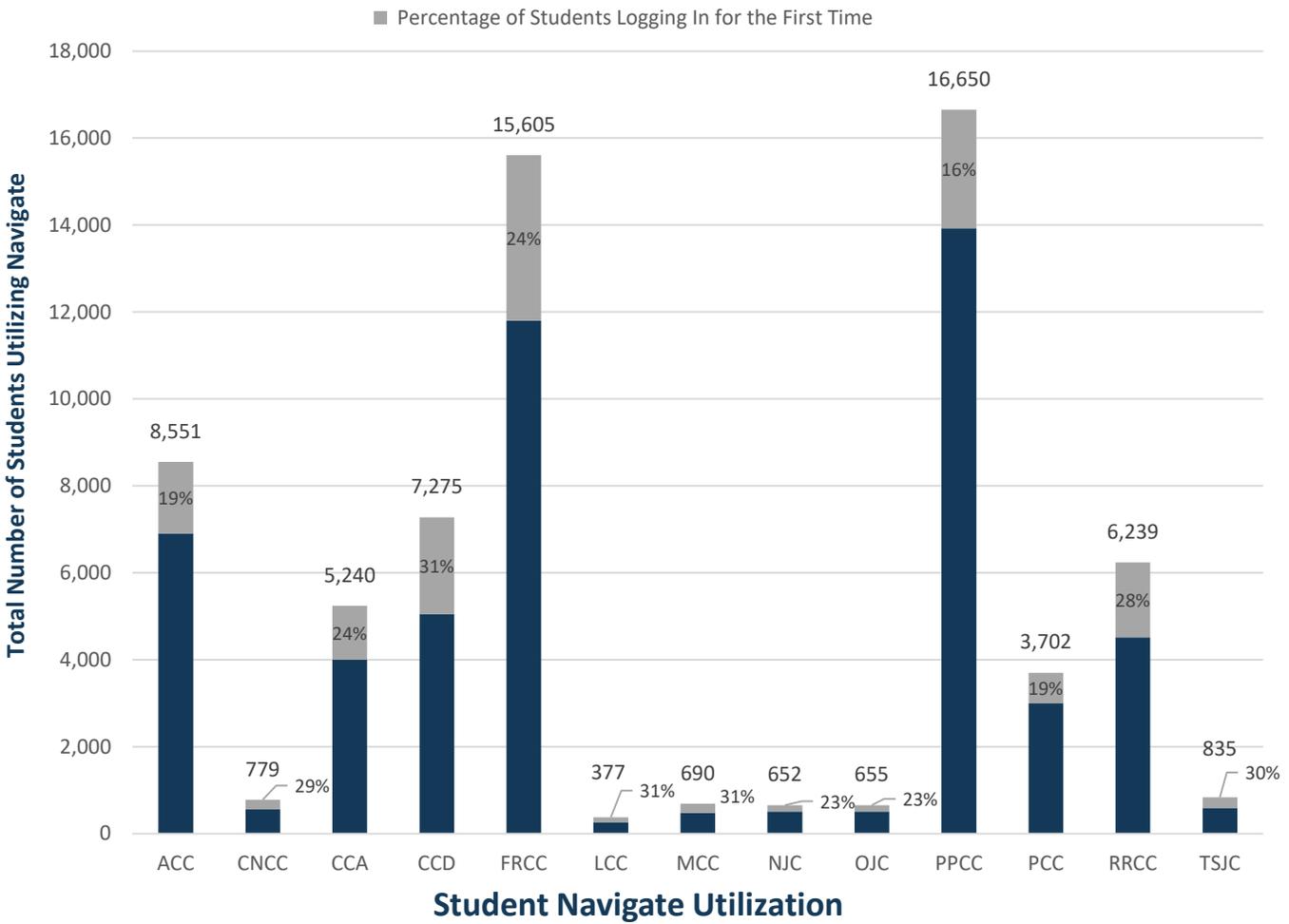**Projects Completed from Jun-20 through May-21**

Functional Area	Number of Projects
Accounts Receivable	11
Advancement	2
All	5
CCCOnline	1
Finance	2
Financial Aid	15
Human Resources/Payroll	4
Infrastructure	3
Institutional Research/Business Intelligence	1
Student	19
Total	**63**

Completed Projects Per Fiscal Year

Fiscal Year	Completed Projects
FY21	63
FY20	56
FY19	50
FY18	58
FY17	57

- **63 projects were completed during Jun-20 through May-21. This is seven more projects than the prior year.**

- **284 projects were completed between FY17 and FY21.**

- **On average, 56.8 projects are completed per year.**

- **CCCS-IT has undertaken projects for all functional areas. Student Affair projects (Student and Financial Aid) represents 54% of all completed projects during FY 21.**

- **In addition to these projects, System IT completed the work for 209 Request For Change (RFC) tickets during FY 21.**

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12 EAB NAVIGATE – STUDENT UTILIZATION

- A Student Success application that shows our students all the important things they need to do in one easy-to-view path.

- Helps students to pick a major, build a best-fit course schedule, register for classes, find resources on campus, and communicate and/or schedule appointments with their advisor.

■ Percentage of Students Logging In for the First Time

Total Number of Students Utilizing Navigate

College	Total	First Time %
ACC	8,551	19%
CNCC	779	29%
CCA	5,240	24%
CCD	7,275	31%
FRCC	15,605	24%
LCC	377	31%
MCC	690	31%
NJC	652	23%
OJC	655	23%
PPCC	16,650	16%
PCC	3,702	19%
RRCC	6,239	28%
TSJC	835	30%

Student Navigate Utilization

- **From July-20 through June-21, 67,250 students are logging in to Navigate and around 23% are students who are logging in for the first time.**

- **Overall, around 53% of students have completed the intake Survey.**

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12.1 EAB NAVIGATE – STAFF UTILIZATION

- Navigate for Staff is a web-based student performance monitoring system that provides automated student services to assist with Student Success overall.

- Allows staff to create appointments and appointment summary reports and email and text students.

Navigate Staff Utilization

	Total Number of Appointments Created	Distinct Students with Appointments	Total Number of Appointment Summary Reports	Emails Sent	Text Messages Sent
ACC	27,089	9,590	18,909	676,079	155,766
CNCC	1,772	618	1,194	12,108	14,760
CCA	22,893	4,675	17,673	84,125	31,932
CCD	29,268	8,802	23,586	102,357	71,916
FRCC	58,211	20,512	51,323	138,707	4
LCC	638	310	437	8,915	7,843
MCC	1,362	569	1,165	39,658	863
NJC	4,896	503	787	9,407	3,643
OJC	2,854	1,038	2,327	20,609	30,181
PPCC	106,251	23,199	97,662	23,707	12,368
PCC	27,159	7,969	21,804	149,841	130,137
RRCC	24,053	8,070	18,246	462,049	35,274
TSJC	2,290	1,011	941	8,577	2,304
Total	**308,736**	**86,866**	**256,054**	**1,736,139**	**496,991**

- **From July-20 through June-21, 86,866 students participated in 308,736 appointments.**

- **On average, each student had 3.6 appointments that were organized via Navigate compared to 3.2 appointments in the prior year.**

- **During the same time period, staff used Navigate to send 1,736,139 emails and 496,991 text messages. That is around 48% and 52% increase, respectively, over the prior year,.**

- **Seen a 51.4% and 63.8% increase, respectively, in the past five years.**

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13 ENTERPRISE SECURITY

CCCS Enterprise Information Security supports and maintains an information security program utilizing people, process, and technology that helps protect CCCS and college information systems. CCCS Enterprise Security's Mission Statement is:" CCCS Information Security collaborates with the Colleges to provide cybersecurity services, oversight, and advisement that assists the colleges and the system in reducing risk and safeguarding the confidentiality, integrity, and availability of CCCS's information assets."

The objectives of CCCS Enterprise Information Security program are:

- Educate Staff and Faculty with awareness and knowledge to protect institutional data and meet compliance obligations.

- Collaborate with colleges to enable the best student outcomes while protecting sensitive and confidential information.

- Information security leadership will be a trusted advisor/expert for institutional leadership.

- A robust set of security operations services that reduce risk while providing an excellent return on investment.

To deliver on this program CCCS has implemented several cybersecurity tools that will be categorized using the NIST CSF (Cyber Security Framework).

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13.1 IDENTIFY

In this section we are reporting on activities and products that help System IT security to identify risks so CCCS can be proactive in reducing risk to information assets.

What does identify mean:

•   Identify - Develop the organizational understanding to manage cybersecurity risk to systems, assets, data, and capabilities.

13.1.1 CYBER SECURITY POLICY AND PROCEDURES

In 2020 CCCS set out to create comprehensive Cyber Security Policy and Procedures. The Cyber Security Policy has been completed and 21 procedures were approved and published in January of 2021. The policy and procedures are based on several best practices for cyber security such as the NIST Cyber Security Framework and the CIS Critical Security Controls. When the policy and procedures are fully implemented CCCS Cyber security posture will be significantly improved.

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13.1.2 ARCTIC WOLF MANAGED RISK PLATFORM

Built on the industry's only cloud-native platform to deliver security operations as:

- A concierge service—Arctic Wolf Managed Risk enables CCCS to continuously scan Networks, and endpoints, to inventory digital assets quantify digital risks.

- The Arctic Wolf security operations expert from the Concierge Security Team works directly with CCCS to discover risks beyond simple vulnerabilities, benchmark the current state of your environment, and implement risk management processes that harden your security posture over time.

Arctic Wolf delivered services and operations are applied to all of CCCS applications and systems.

CCCS System Office Digital Risk Profile as of November 11, 2021:

Network Risk Summary
Based on the latest set of risks, the following is a snapshot of your companies' risk landscape.

8.1	7.0	8697
Current Risk Score	Industry Risk Score	Unresolved Risks

Risk Score Trends

Risks Classification Summary
Summary of risks broken out by Infrastructure Type and Classification Type.

Risks by Classification

Upgrade - Medium	24.5%
Upgrade - High	7.5%
Configuration - Medium	19.1%
Under Investigation - Medium	44.8%

Classification	Count
Breach	0
Upgrade	3871
Configuration	2396
Under Investigation	5847

13.2 PROTECT

In this section we examine the performance of products that served multiple purposes under the NIST CSF

- Protect - Develop and implement the appropriate safeguards to ensure delivery of critical infrastructure services.

13.2.1 SECURITY AWARENESS TRAINING

Security Awareness Training educates employees about the cyber security landscape. Security Awareness Training helps to raise awareness of cyber security threats, reduce the risks associated with cyber-attacks and embed a culture of security compliance.

IN 2021 CCCS delivered mandatory cyber security awareness training to all employees. The training covered the following topics:

- Social Engineering

  - Phishing

  - Pretexting

  - Vishing

  - Smishing (phishing via text messages)

  - Spear Phishing

- Electronic Threats

- Software-Based Attacks

- Internet-Based Attacks

- Mobile Device Security

- Malware

- **Here is the status of the 2021 information security awareness campaign:**

12468 All Users	38% 4738 Incomplete	36.6% 4562 Not Started	1.4% 176 In Progress	62% 7730 Completed

- **This was the most successful information security awareness campaign ever done at CCCS. Employees are reporting suspicious email at a much higher rate which reduces overall cybersecurity risk to CCCS.**

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13.2.2 MULTI-FACTOR AUTHENTICATION (MFA)

- Multi-Factor Authentication (MFA) is needed to reduce the risk of email compromise, breech, ransomware, and other cybersecurity threats that take advantage of stolen credentials (login and password). MFA is an electronic authentication method that adds one more "factor" to check in addition to a password.

- CCCS choose the DUO MFA solution to secure applications at significant risk of unauthorized access due to stolen/compromised credentials. The product was procured in July of 2021 and a project was launched to implement MFA across CCCS.

- At this time over 13,000 employees have been invited to enroll in the DUO MFA solution.

- In the last 60 days DUO has processed over 400k authentications for CCCS and prevented several hacking attempts.

Overview

94%		
Success Rate See All Authentications	**Duo Push** See Top Auth Methods	**Microsoft OWA** See Top Applications

412.9k Authentications

Shown at **every day**.

● Granted access   ● Denied access

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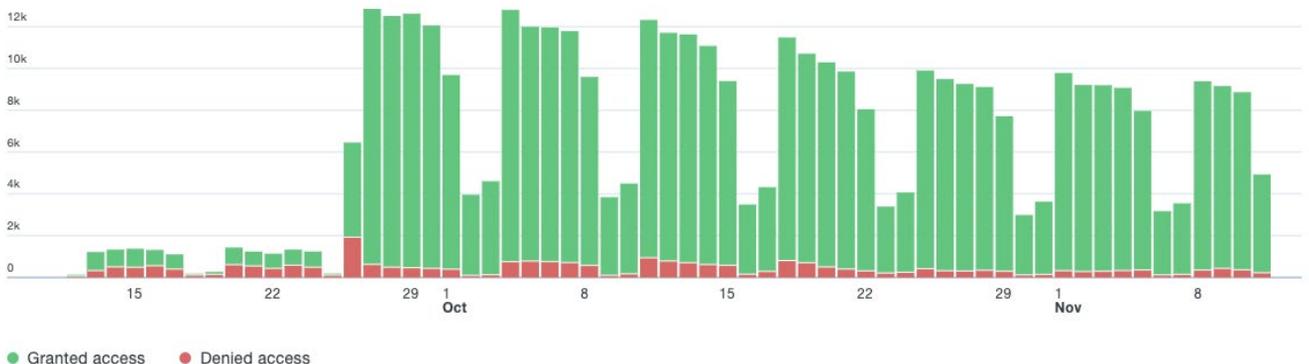
13.3.3 SOPHOS ENDPOINT PROTECTION (ANTI-VIRUS, ANTI-MALWARE)

Sophos Intercept X employs a comprehensive, defense in depth approach to endpoint protection, rather than relying on one primary security technique. This layered approach combines modern and traditional techniques to stop the widest range of threats.

Stop Unknown Threats

- Deep learning AI in Intercept X excels at detecting and blocking malware even when it hasn't been seen before. It does this by scrutinizing file attributes from hundreds of millions of samples to identify threats without the need for a signature.

Block Ransomware

- Intercept X includes advanced anti-ransomware capabilities that detect and block the malicious encryption processes used in ransomware attacks. Files that have been encrypted will be rolled back to a safe state, minimizing any impact to business productivity.

Prevent Exploits

- Anti-exploit technology stops the exploit techniques that attackers rely on to compromise devices, steal credentials, and distribute malware. By stopping the techniques used throughout the attack chain Intercept X keeps your organization secure against file-less attacks and zero-day exploits.
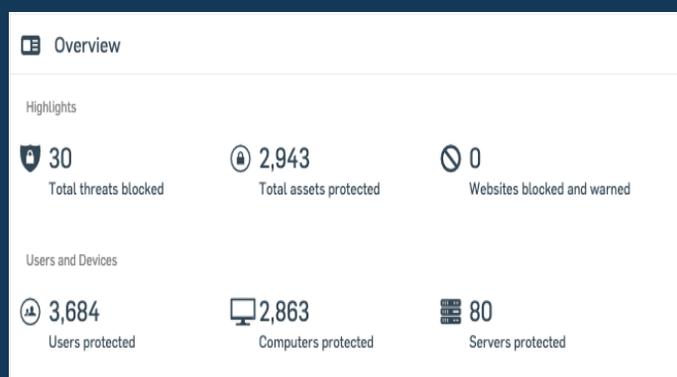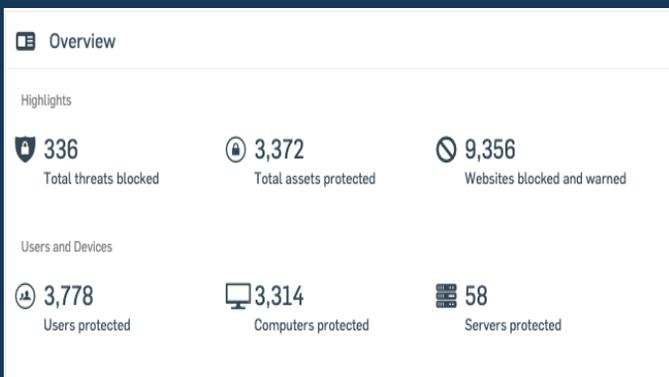
Layered Defenses

- In addition to powerful modern functionality, Intercept X also utilizes proven traditional techniques. Example features include application lockdown, web control, data loss prevention and signature-based malware detection. This combination of modern and traditional techniques reduces the attack surface and provides the best defense in depth.

Here are a few sample statistics on how Sophos endpoint protection is preventing threats across CCCS.

At FRCC in the last 30 days (Oct 12 – Nov 11):

Overview		
Highlights		
336 Total threats blocked	3,372 Total assets protected	9,356 Websites blocked and warned
Users and Devices		
3,778 Users protected	3,314 Computers protected	58 Servers protected

At PPCC in the last 30 days (Oct 12 – Nov 11):

Overview		
Highlights		
30 Total threats blocked	2,943 Total assets protected	0 Websites blocked and warned
Users and Devices		
3,684 Users protected	2,863 Computers protected	80 Servers protected

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13.3.4 UMBRELLA

- Cisco Umbrella is a cloud-based security platform that provides multiple levels of defense against internet-based threats and enables users to extend protection from network to branch offices to roaming users.

- Over the last 30 days, Cisco Umbrella blocked over 80k cyber threats.

13.3.5 CISCO FIREPOWER THREAT DEFENSE (FIREWALL)

- Cisco Firepower (Firewall) is an integrated suite of network products that provide a comprehensive suite of security features such as firewall capabilities, monitoring, alerts, intrusion detection and prevention, application control, and anti-malware and URL filtering capabilities.

- **In the last year the Cisco Firepower firewalls observed and blocked over 1.3 million attacks.**

Total Attacks	Relevant Attacks	Hosts Targeted	Irrelevant Attacks
1,367,744	18,314	36	98.66%

13.4 DETECT, RESPOND

In this section we examine the performance of products that served multiple purposes under the NIST CSF

- Detect - Develop and implement the appropriate activities to identify the occurrence of a cybersecurity event.

- Respond - Develop and implement the appropriate activities to take action regarding a detected cybersecurity event.
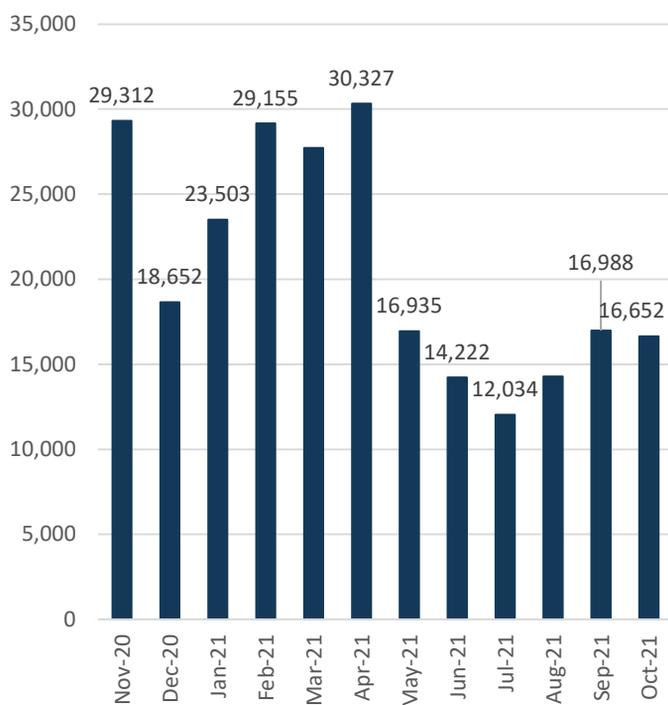
13.4.1 ARCTIC WOLF MANAGED DETECTION AND RESPONSE

- Arctic Wolf Managed Detection and Response (MDR) solution provides 24×7 monitoring of your networks, endpoints, and cloud environments to help you detect, respond, and recover from modern cyber-attacks.

- The Arctic wolf MDR service helps the CCCS information security team evaluate and respond to cyber threats by weeding out all the noise so the security team can respond to threats that can cause the most damage. This service has been invaluable in protecting CCCS digital assets during 2021.
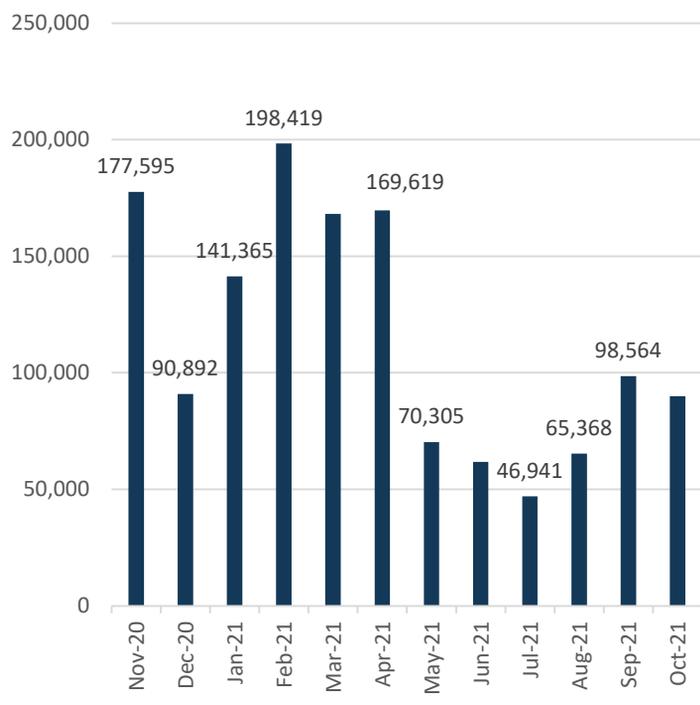
14 CISCO WEBEX

- Cisco WebEx is web conferencing and collaboration tool that includes products such as WebEx Meetings, WebEx Teams and WebEx Events.

- All WebEx products are hosted in the cloud and System IT supports various integrations between WebEx products, VoIP, E-Mail and D2L.

Number of Hosted Meetings

Month	Value
Nov-20	29,312
Dec-20	18,652
Jan-21	23,503
Feb-21	29,155
Mar-21	27,800
Apr-21	30,327
May-21	16,935
Jun-21	14,222
Jul-21	12,034
Aug-21	14,300
Sep-21	16,988
Oct-21	16,652

Total Number of Meeting Participants

Month	Value
Nov-20	177,595
Dec-20	90,892
Jan-21	141,365
Feb-21	198,419
Mar-21	169,000
Apr-21	169,619
May-21	70,305
Jun-21	60,000
Jul-21	46,941
Aug-21	65,368
Sep-21	98,564
Oct-21	89,000

- **The total number of hosted meetings since Nov-20 is 249,782 with 1,378,998 participants; this represents a 1,150% and 11.2% increase, respectively, over the prior year.**

- **Due to the extremely large increase in the number of hosted meetings, the average number of participants per meeting declined from 62 in the prior year to 5.5 this year, a 91% decrease.**

- **The average number of participants in Nov-20 was 6 participants while in Oct-21 was 5.4 participants.**

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15 ETHOS - SINGLE-SIGN-ON

- Ellucian Ethos Identity is used for authentication and Single-Sign-On (SSO) for most of CCCS enterprise applications, such as Portal, D2L, Banner, Student Email, EAB, and others (130 applications total).

- Ethos is hosted within the System IT data centers and maintained and supported by the CCCS Portal Team.

- The School Portal Admins help maintain and support the branded sign-on pages for their school.

- System IT customized some of the Ethos functionalities and built new ones to meet CCCS requirements.

- Ethos support various SSO protocols and that made it easier to implement and support many SSO integrations.
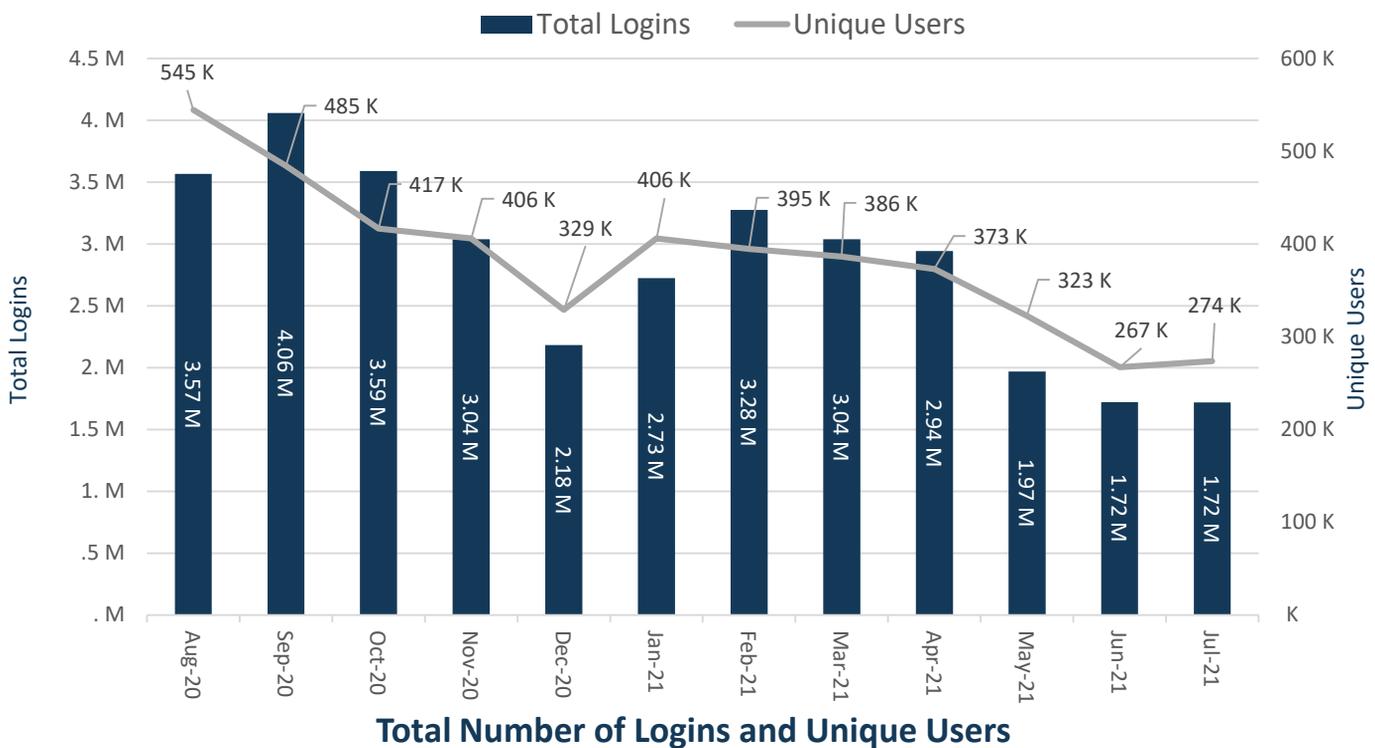
Total Number of Logins and Unique Users

- **Unique users are counted based on the browser cookies/cache. When a user clears their browser cookies/cache, they will be treated as a new user.**

- **Over the last 12 months, Ethos processed over 33.8 million logins with an average of 2.8 million logins per month.**

- **Ethos processed more than 4.6 million unique users' successful logins with an average of 383,705 unique users per month.**

16 ACTIVE DIRECTORY ACCOUNTS AND PASSWORD RESETS

- Active Directory (AD) Accounts contain the username and password that are used to access computing resources. All CCCS users have AD accounts to log in to resources or applications, such as computers, Network/Wi-Fi, Portal, D2L, Banner, email, WebEx, etc.

- System IT handles the provisioning and de-provisioning of the student AD accounts while the school IT departments handle the provisioning and de-provisioning of their staff and faculty AD accounts.

- System IT build password reset tools that are used by the help desks, students, faculty, and staff.
    - **Student Identity Verification:** a password self-reset tool to be used by students. They verify their identity by answering a set of questions based on their student record. If successful, students will be able to reset their passwords.
    - **Password Recovery via Personal Email:** a password self-reset tool to be used by all users (students, faculty, and staff). Users use their personal emails on file to receive a temporary password.
    - **Student AD Manager:** a password and AD account management tool designed to be used by both the 24X7 and school help desks to help students with password issues in case they are unsuccessful in using the password self-rest tools.

Number of Password Resets Done by Self-Reset Tools Vs Help Desks
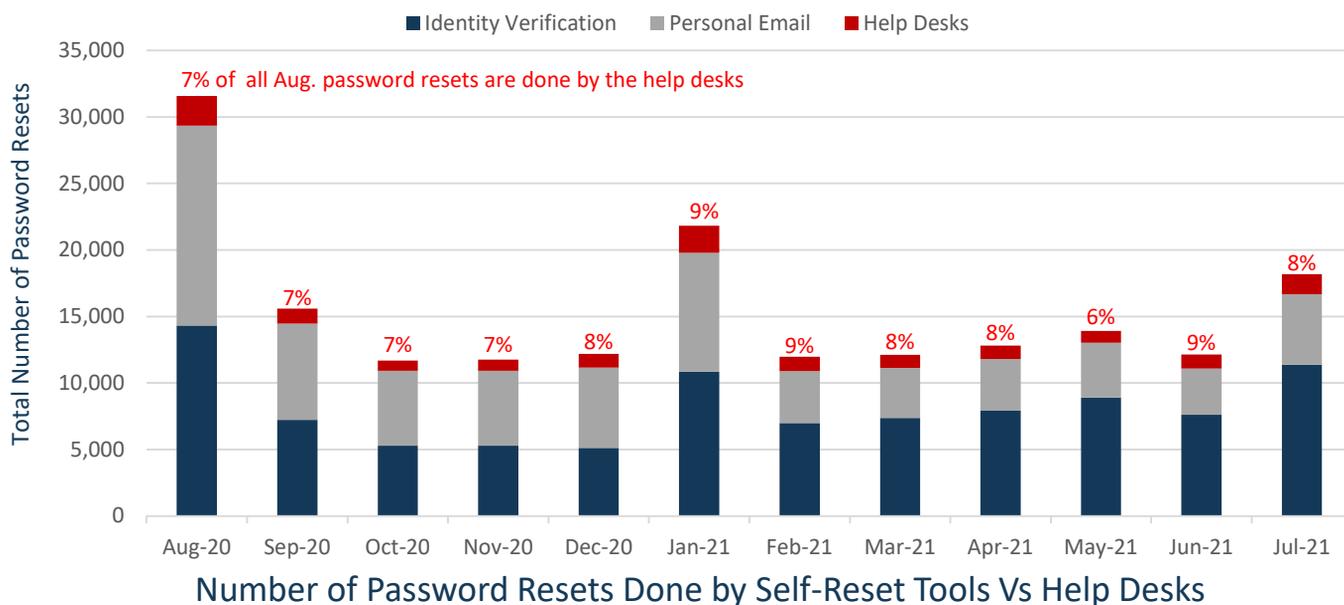
- The total number of password resets from Aug. 20 through Jul. 21 is 185,734.

- Over 92% of all password resets are done via the password self-reset tools.

- The monthly average of password resets are 8,189 via Identity Verification, 6,077 via Personal Email, and 1,212 via the 24X7 and the school Help Desks.

- The daily average of password resets are 206 via Identity Verification, 277 via Personal Email, and 41 via the 24X7 and the school Help Desks.

- More password resets occur during the beginning of each term.

- 31,568 password resets took place during Aug. 20 due to the implementation of the new consolidated user identity and Ethos Single-Sign-On application.

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17 CISCO IRONPORT

- Cisco IronPort is an email security virtual appliance (ESA) that provides centralized reporting, message tracking and spam quarantine services.

- Administrators can simplify email and web security administration, gain corporate-wide insight into their email network, and comply with governance and compliance requirements.

- It incorporates the following features:

- **External Spam Quarantine:** Hold spam and suspected spam messages for end users, and allow end users and administrators to review messages that are flagged as spam before making a final determination.

- **Centralized Policy, Virus, and Outbreak Quarantines:** Provide a single interface for managing these quarantines and the messages quarantined in them from multiple Email Security appliances. Allows you to store quarantined messages behind the firewall.

- **Centralized reporting:** Run reports on aggregated data from multiple Email and Web Security appliances. The same reporting features available on individual appliances are available on Security Management appliances.

- **Centralized tracking:** Use a single interface to track email messages and web transactions that were processed by multiple Email and Web Security appliances.

- **Centralized Configuration Management for Web Security appliances:** For simplicity and consistency, manage policy definition and policy deployment for multiple Web Security appliances.

Outgoing Mail Summary (June 2020 – May 2021):

Message Processing	%	Messages
Spam Detected	0.0%	0
Virus Detected	0.0%	0
Detected by Advanced Malware Protection	0.0%	0
Messages with Malicious URLs	0.0%	0
Stopped by Content Filter	0.1%	33,731
Clean Messages	99.9%	29,669,714
Total Messages Processed:		**29,703,445**

Message Delivery	%	Messages
Hard Bounces	3.1%	922,480
Delivered	96.9%	28,601,599
Total Messages Delivered:		**29,524,079**

Incoming Mail Summary (June 2020 – May 2021):

Message Category	%	Messages
Stopped by IP Reputation Filtering	81.1%	155,830,695
Stopped by Domain Reputation Filtering	0.0%	0
Stopped as Invalid Recipients	0.1%	182,884
Spam Detected	2.7%	5,140,416
Virus Detected	0.0%	115
Detected by Advanced Malware Protection	0.0%	922
Messages with Malicious URLs	0.0%	61,443
Stopped by Content Filter	0.2%	408,984
Stopped by DMARC	0.2%	353,928
S/MIME Verification/Decryption Failed	0.0%	0
Total Threat Messages:	**84.1%**	**161,565,427**
Marketing Messages	0.6%	1,136,099
Social Networking Messages	0.1%	104,594
Bulk Messages	0.4%	819,997
Total Graymails:	**1.1%**	**2,060,690**
S/MIME Verification/Decryption Successful	0.0%	0
Clean Messages	14.9%	28,590,810
Total Attempted Messages:		**192,216,927**

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18 DISASTER RECOVERY/BUSINESS CONTINUITY

After the significant flood that hit the Denver metro area in 2013, the Colorado State Board for Community Colleges and Occupational Education approved a specified spending authority to formulate and contract for an IT disaster recovery site in order to maintain continuity of operations in the event of a significant weather or other event that could disrupt operations at the Lowry IT datacenter. After extensive research by system IT and consultation with Oracle and other vendors, System IT put together an IT disaster recovery plan that includes the wide-area network, email, telecommunications, identity service, and Banner-related components. Extensive work on the planning and execution related to the System IT disaster recovery/business continuity project took place in FY17 and FY18. The culmination of this work included a detailed plan for disaster recovery and business continuity testing.

The software applications and infrastructure environment supported by System IT are constantly evolving and changing. Changes include: implementation of new software products; software upgrades from vendors to provide new and enhanced functionality; vendor provided patches to address security vulnerabilities and software defects; solutions developed in-house by System IT Developers to meet business needs identified in approved project requests; and planned changes and enhancements to system configuration, storage, back-ups and monitoring.

In order to ensure that the System IT disaster recovery and business continuity plans stay current with the ever-changing environment, disaster recovery planning is built into all new projects. A failover test is conducted six times per year to ensure the systems are operational. These tests involve approximately 30 staff from System IT and CCCOnline. Four tests are conducted in the test environment (USRE) on the first Friday of March, June, and December, as well as the second Friday in September. Each of these tests take approximately five hours to complete. In addition, two tests are conducted in the production environment (PROD) on the third Sunday in April and October. Each of the production tests take approximately 6 hours to complete. Altogether, the annual disaster recovery/business continuity testing requires approximately 1,200 person hours to complete.

The 10 hours of production testing includes failover and failback, with testing after each to ensure the systems are operational. In the event of a catastrophic systems failure requiring a failover to the alternate data center, it would likely take approximately 2-3 hours to have all ERP systems functioning, tested and available to end-users. Failback is basically the reverse of failover and would take a similar amount of time to complete. Services such as VoIP, Internet, E-Mail, Active Directory, Wide Area Network, WebEx and Ethos all are configured in an Active-Active scenario and failover on these applications happens immediately with zero downtime.

In order to be effective with disaster recovery/business continuity testing, all team members must be fully engaged and must do their part. The team from System IT and CCCOnline are dedicated to this effort and work collaboratively to ensure success. System IT strives to shorten the failover testing windows and ensure that systems are available to the system office and the colleges as close to 100% as possible. Over the past 5 years System IT has learned a lot about highly available data centers and newer technologies that provide greater redundancy and application availability. System IT has taken this knowledge and is currently leveraging newer technologies to enhance our IT Disaster Recovery and Business Continuity plan and over the next 6 months will be replacing the current technology and enhancing our response time for disasters. This new technology will allow System IT to reduce the hours required to fail our critical systems between data centers, keeping services more available during failover testing or in the event of a catastrophic failure in one data center or the other.

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CONCLUSIONS

Technology is ubiquitous in our world today and most of us could not do our jobs without it.

System IT Success Measures is a compilation of the end results of our technology, from registered students, to tuition payments collected, to paid employees, to malicious emails blocked and to help desk tickets. These are the activities that are assisted by our technology or are the result of our technologies. Hopefully this report sheds some light on the quantity and quality of services provided by System IT and demonstrates the extent to which our technologies and the work of System IT impact the colleges and system office.

System IT strives to be a model information and technology organization recognized for proactive leadership, collaboration, innovation, transparency and responsive customer service. Our complex technology environment as well as our support and governance structure has served as a model for other large institutions and systems.

We would appreciate your feedback on this report and well as on our technology and services.

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